

## CHAPTER 4

### POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE HIWASSEE RIVER WATERSHED

#### 4.1. Background.

#### 4.2. Characterization of HUC-10 Subwatersheds

- 4.2.A. 0602000203 (Hiwassee River)
- 4.2.B. 0602000204 (Conasauga Creek)
- 4.2.C. 0602000205 (Chestuee Creek)
- 4.2.D. 0602000206 (Hiwassee River)
- 4.2.E. 0602000207 (Oostanaula Creek)
- 4.2.F. 0602000208 (Mouse Creek)
- 4.2.G. 0602000209 (Candies Creek)

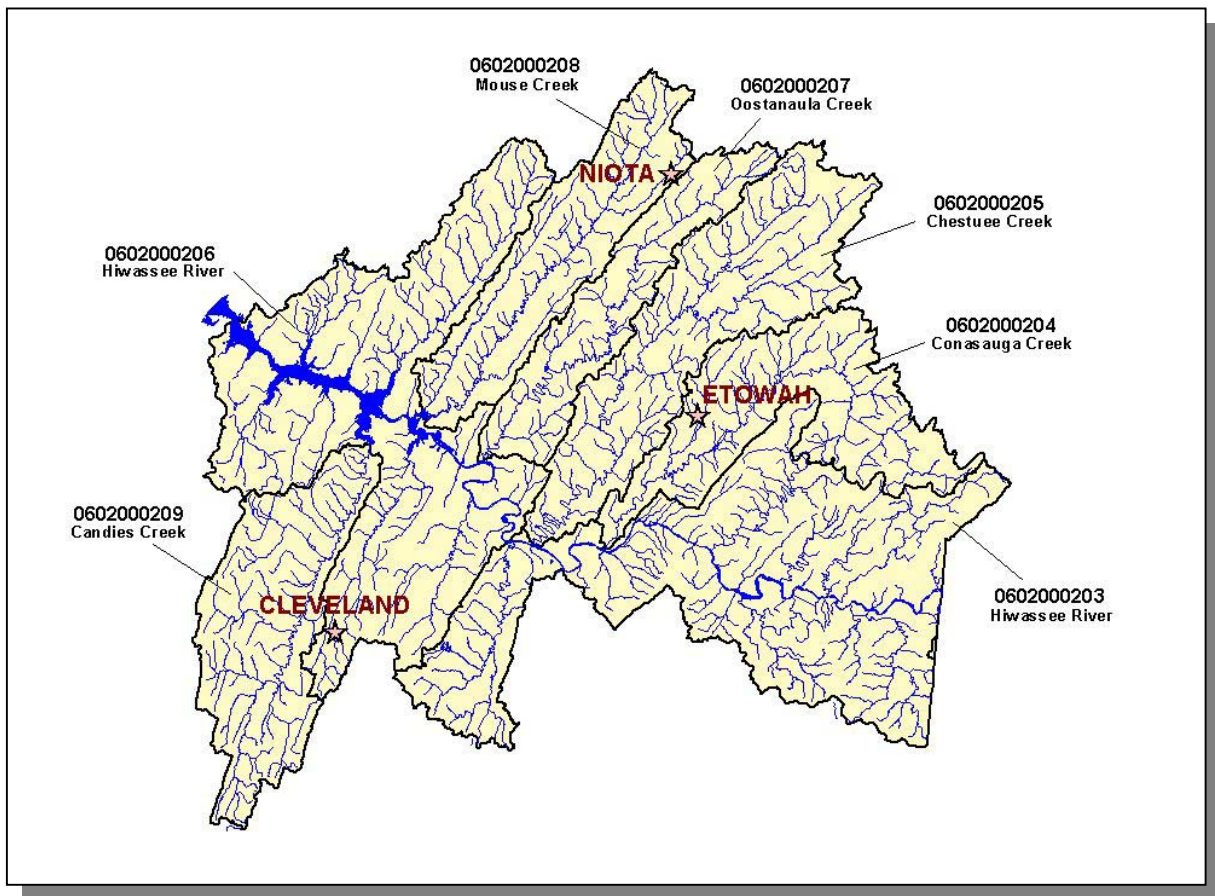
**4.1. BACKGROUND.** This chapter is organized by HUC-10 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
  - ii.a. Description of facilities discharging to water bodies listed on the 1998 303(d) list
- iii. Description of nonpoint source contributions

The Hiwassee River Watershed (HUC 06020002) has been delineated into seven HUC 10- digit subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 1.1 beta (developed by Tetra Tech, Inc for EPA Region 4) released in 2000.

WCS integrates with ArcView® v3.2 and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on agricultural census data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.



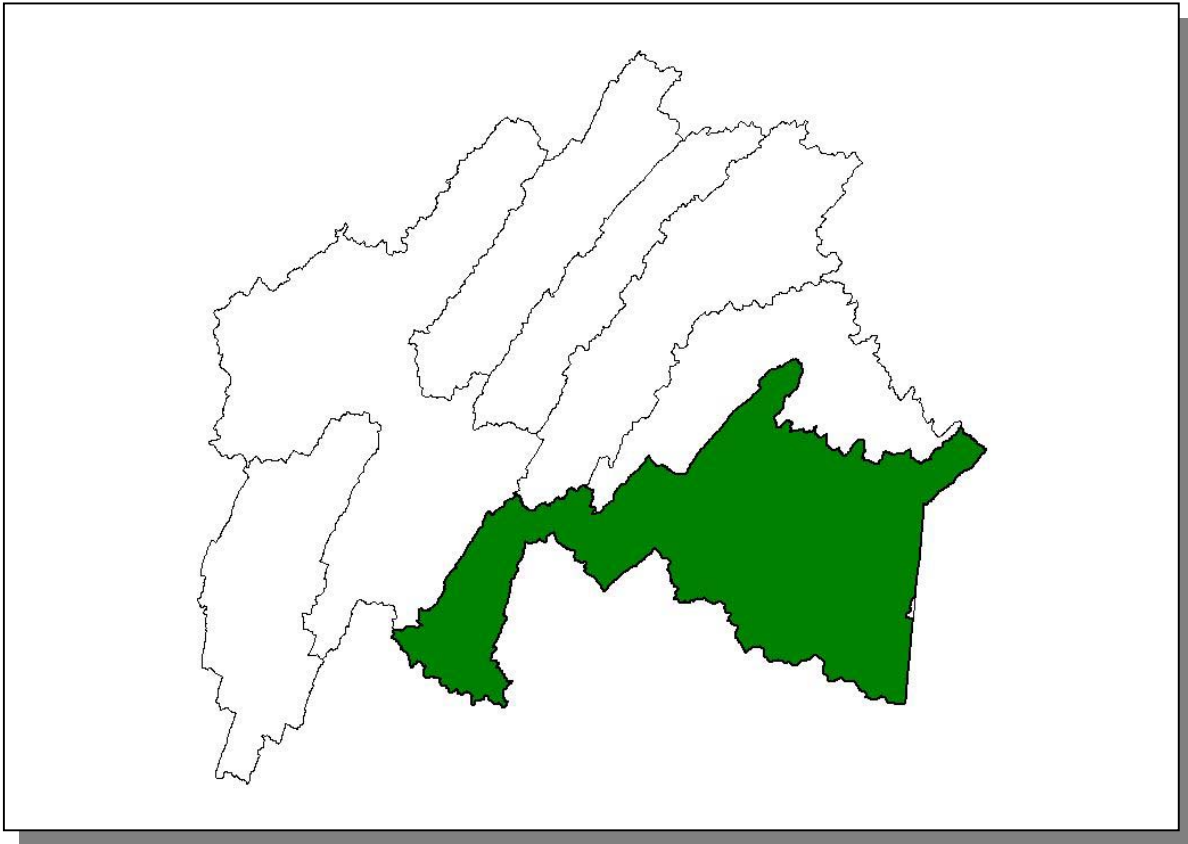
**Figure 4-1. The Tennessee Portion of the Hiwassee River Watershed is Composed of Seven USGS-Delineated Subwatersheds (10-Digit Subwatersheds). Locations of Cleveland, Etowah, and Niota are shown for reference.**

**4.2. CHARACTERIZATION OF HUC-10 SUBWATERSHEDS.** The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the Hiwassee River Watershed.

HUC-10	HUC-12
0602000203	060200020301 (Hiwassee River)
	060200020302 (Turtletown Creek)
	060200020303 (Coker Creek)
	060200020304 (Spring Creek)
	060200020305 (Hiwassee River)
	060200020306 (South Chestuee Creek)
0602000204	060200020401 (Upper Conasauga Creek)
	060200020402 (Lower Conasauga Creek)
0602000205	060200020501 (Upper Chestuee Creek)
	060200020502 (Middle Creek)
	060200020503 (Lower Chestuee Creek)
0602000206	060200020601 (Hiwassee River)
	060200020602 (Hiwassee River)
	060200020603 (South Mouse Creek)
	060200020604 (Rogers Creek)
	060200020605 (Hiwassee River)
0602000207	060200020701 (Upper Oostanaula Creek)
	060200020702 (Lower Oostanaula Creek)
0602000208	060200020801 (Upper Mouse Creek)
	060200020802 (Lower Mouse Creek)
	060200020803 (Spring Creek)
0602000209	060200020901 (Upper Candies Creek)
	060200020902 (Middle Candies Creek)
	060200020903 (Lower Candies Creek)

**Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages.** NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.

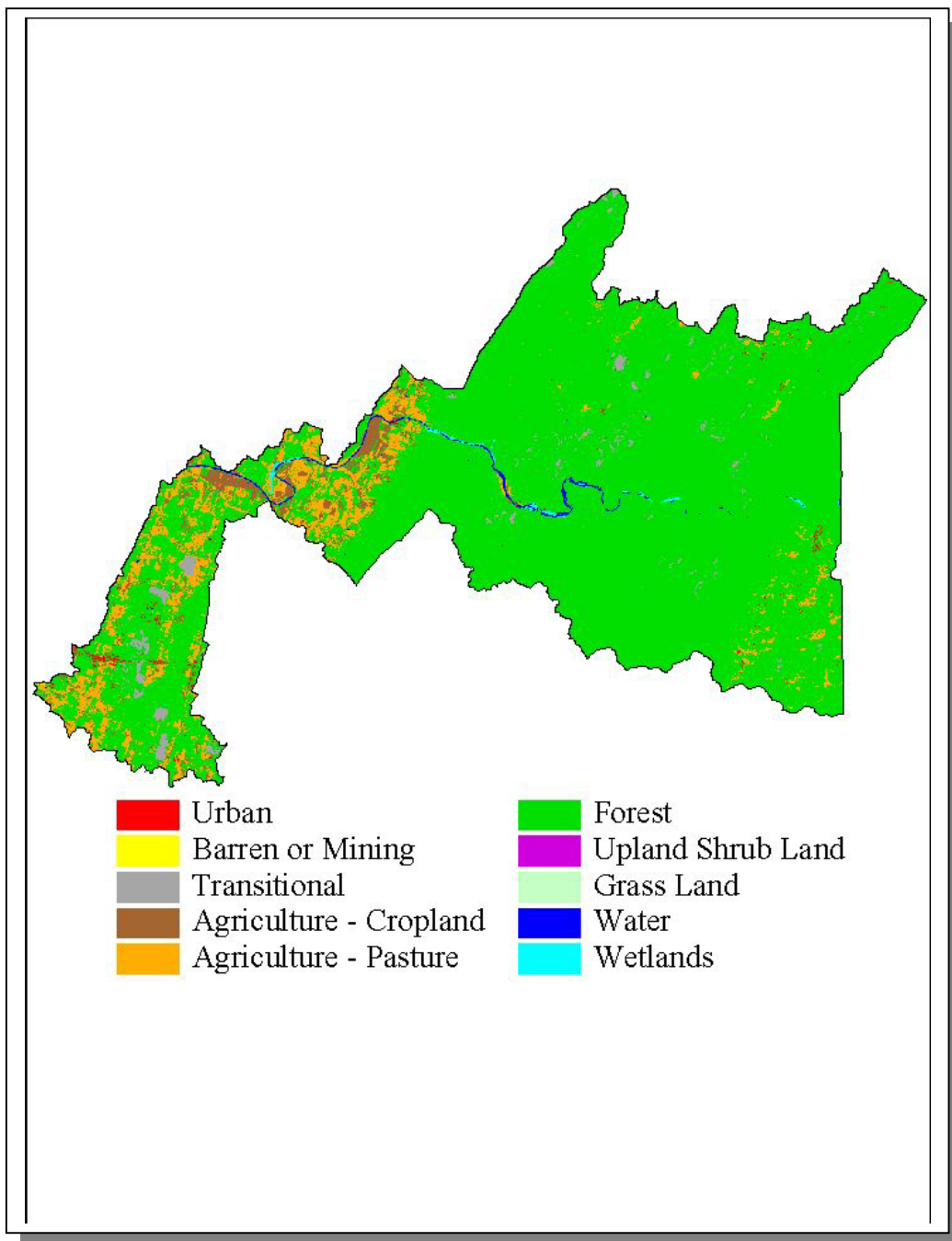
**4.2.A. 0602000203.**



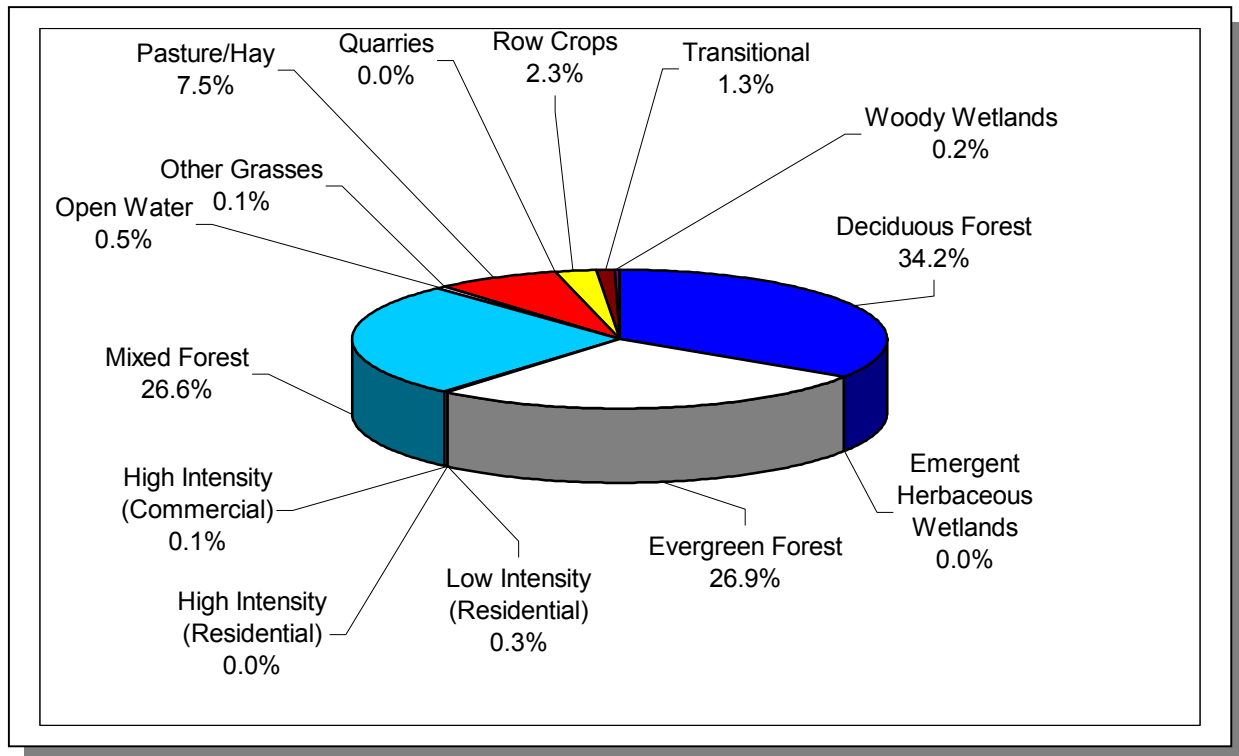
**Figure 4-2. Location of Subwatershed 0602000203.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.



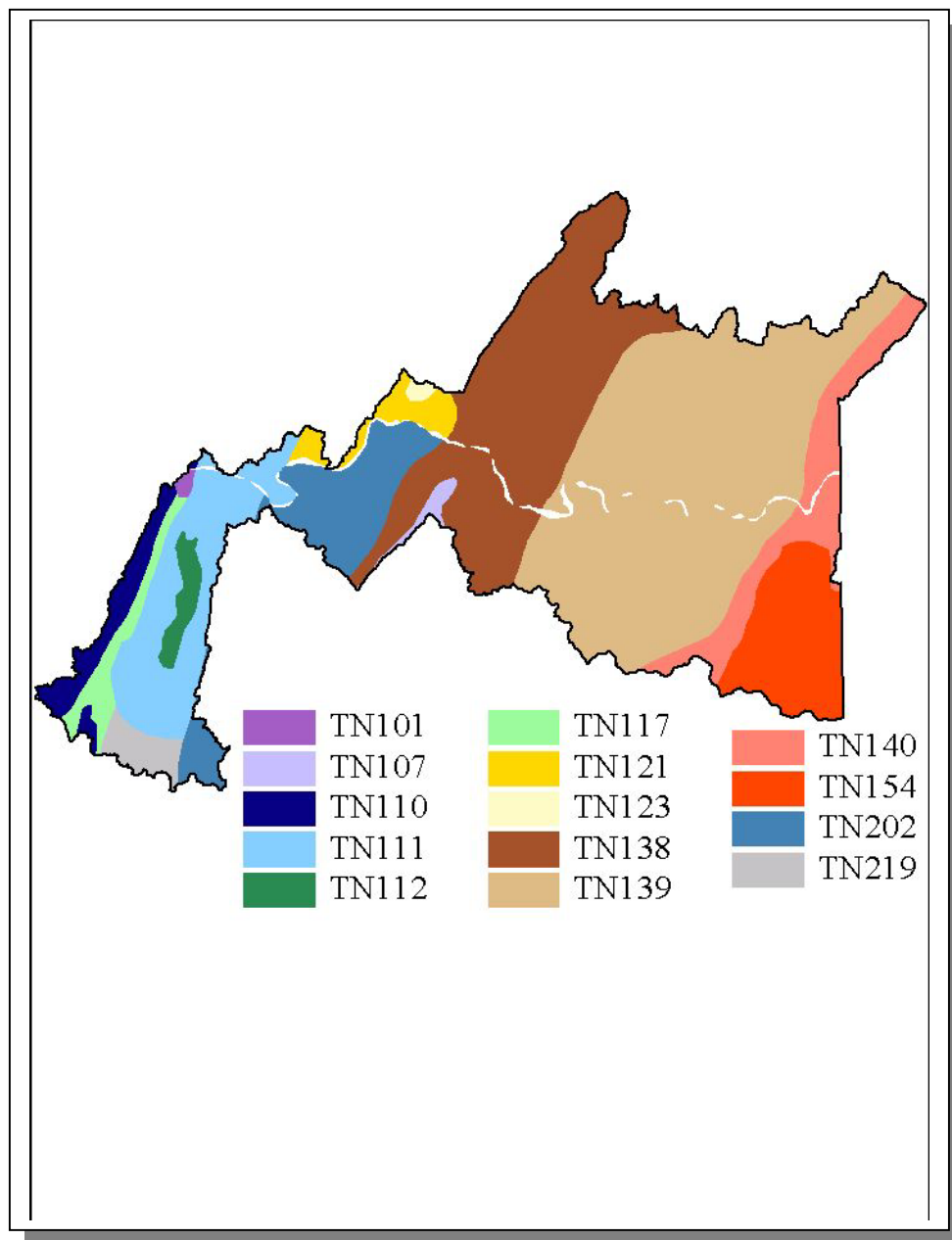
**4.2.A.i. General Description.**



**Figure 4-3. Illustration of Land Use Distribution in Subwatershed 0602000203.**



**Figure 4-4. Land Use Distribution in Subwatershed 0602000203.** More information is provided in Hiwassee-Appendix IV.



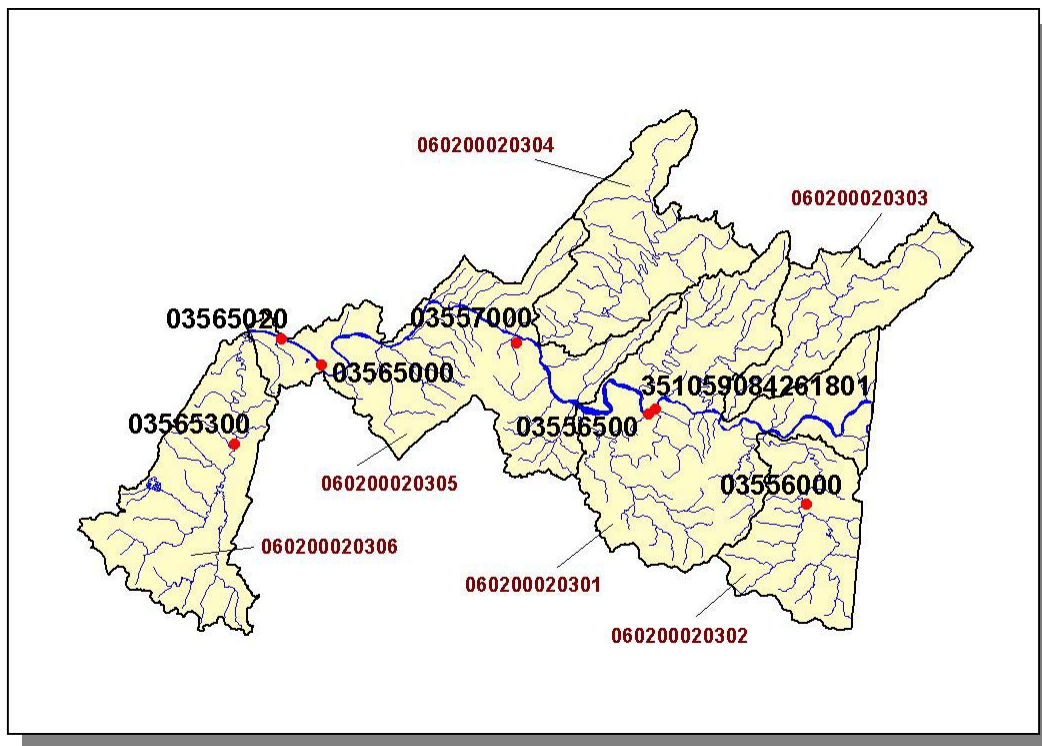
**Figure 4-5. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000203.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28
TN110	0.00	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN112	2.00	C	2.36	5.09	Loam	0.35
TN117	1.00	C	2.06	5.16	Loam	0.37
TN121	0.00	B	1.30	5.21	Loam	0.33
TN123	6.00	C	1.30	5.81	Silty Loam	0.37
TN138	0.00	C	2.48	4.26	Sandy Loam	0.22
TN139	0.00	C	11.84	4.82	Loam	0.20
TN140	0.00	B	3.85	4.85	Sandy Loam	0.21
TN154	9.00	B	2.64	4.66	Loam	0.23
TN202	0.00	B	1.30	5.00	Loam	0.33
TN219	0.00	C	1.35	4.95	Loam	0.33

**Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06020002030.** More details are provided in Hiwassee-Appendix IV.

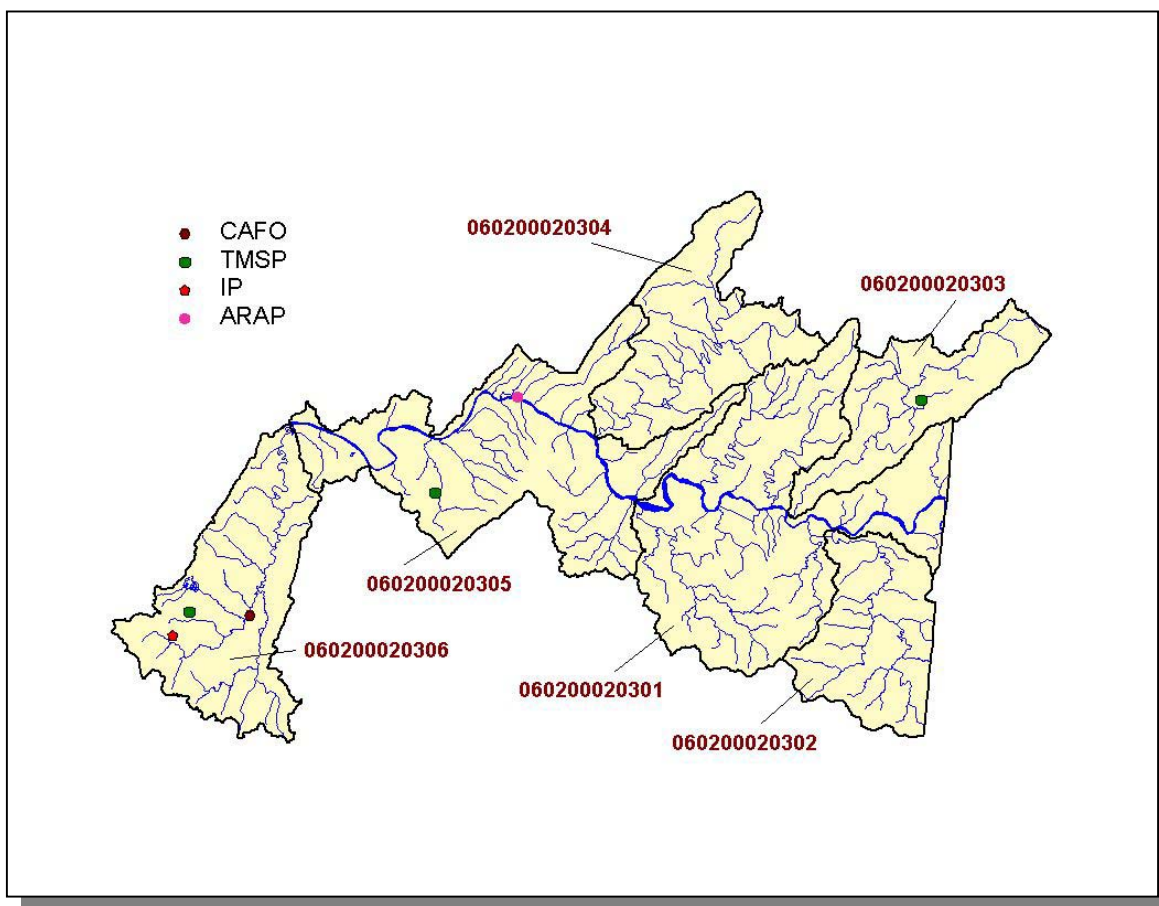
	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bradley	73,712	80,800	10.84	7,994	8,762	9.6
McMinn	42,383	46,000	0.24	100	108	8.0
Monroe	30,541	33,953	5.56	1,700	1,889	11.1
Polk	13,643	14,666	40.87	5,576	5,994	7.5
<b>Totals</b>	<b>160,279</b>	<b>175,419</b>		<b>15,370</b>	<b>16,753</b>	<b>9.0</b>

**Table 4-3. Population Estimates in Subwatershed 0602000203.**

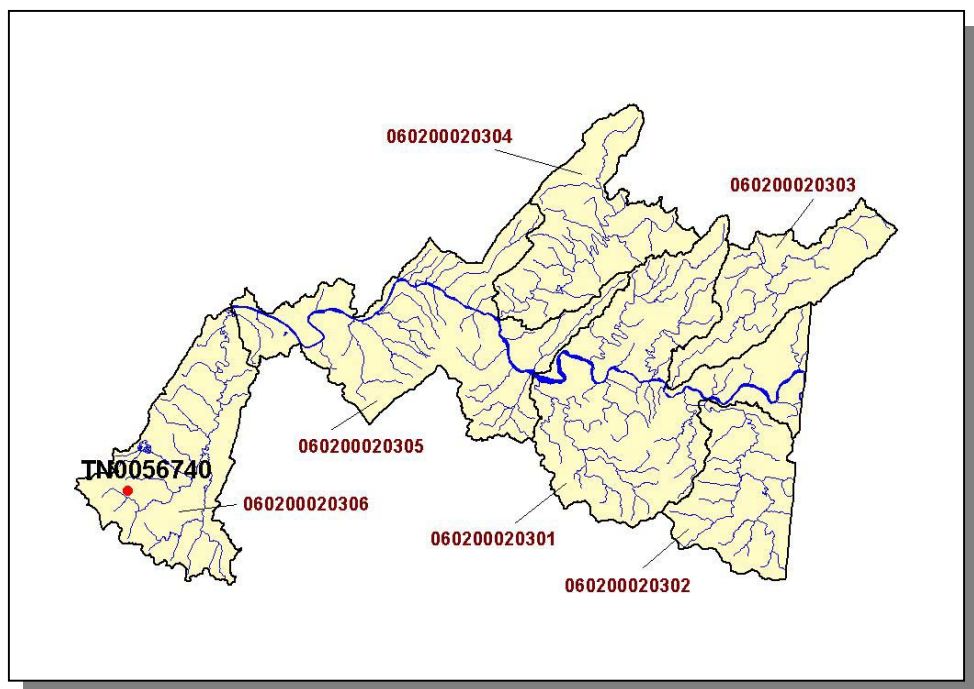


**Figure 4-6. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

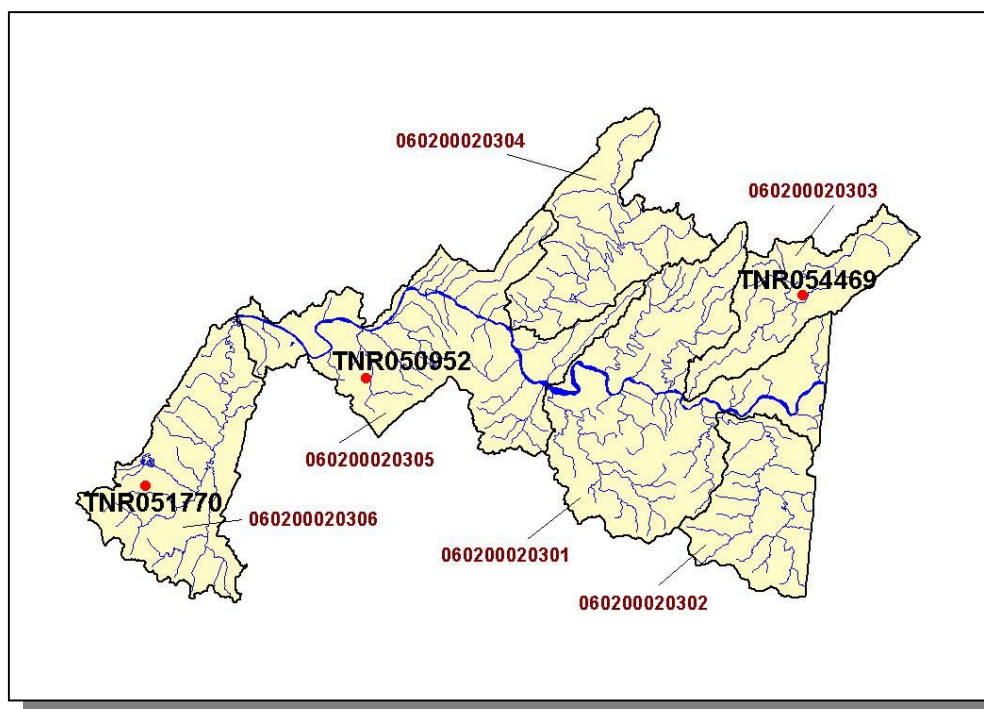
4.2.A.ii Point Source Contributions.



**Figure 4-7. Location of Active Point Source Facilities in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. More information is provided in the following figures.

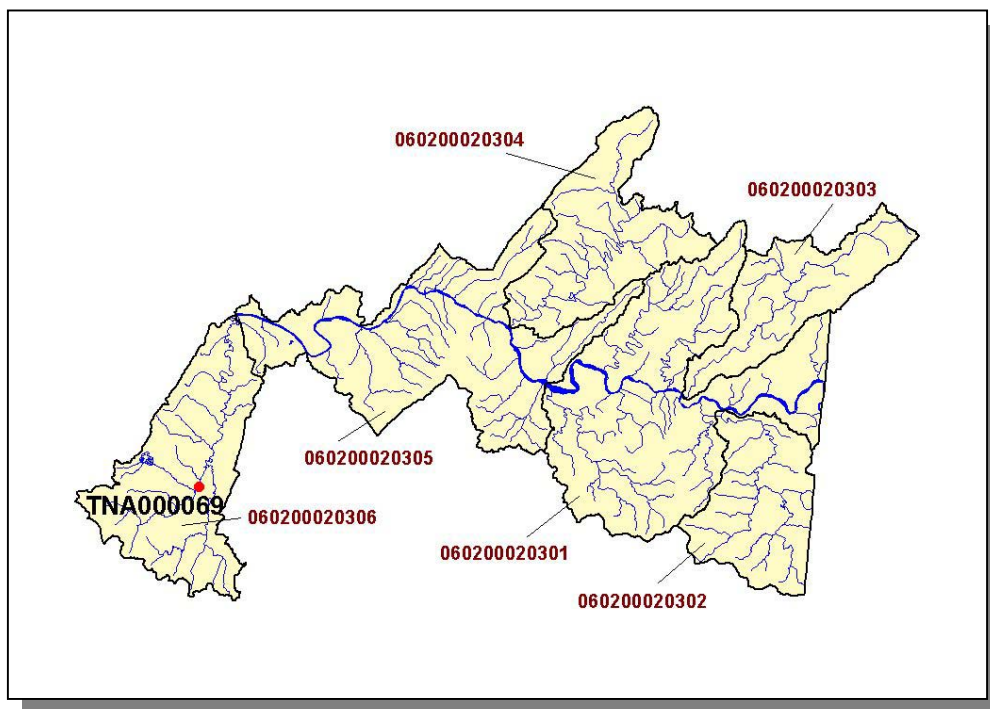


**Figure 4-8. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

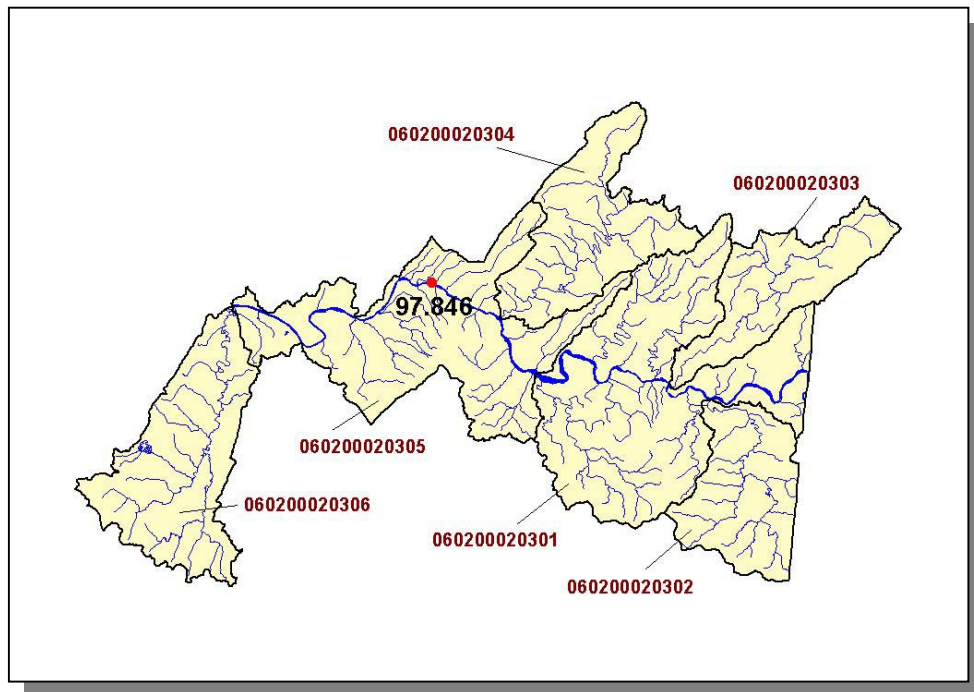


**Figure 4-9. Location of TMSF Facilities in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.





**Figure 4-10. Location of CAFO Facilities in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-11. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000203.** Subwatershed 060200020301, 060200020302, 060200020303, 060200020304, 060200020305 and 060200020306 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.A.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
2,017	6,560	1,309	10	5,233,413	26	13

Table 4-4. Summary of Livestock Count Estimates in Subwatershed 0602000203. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

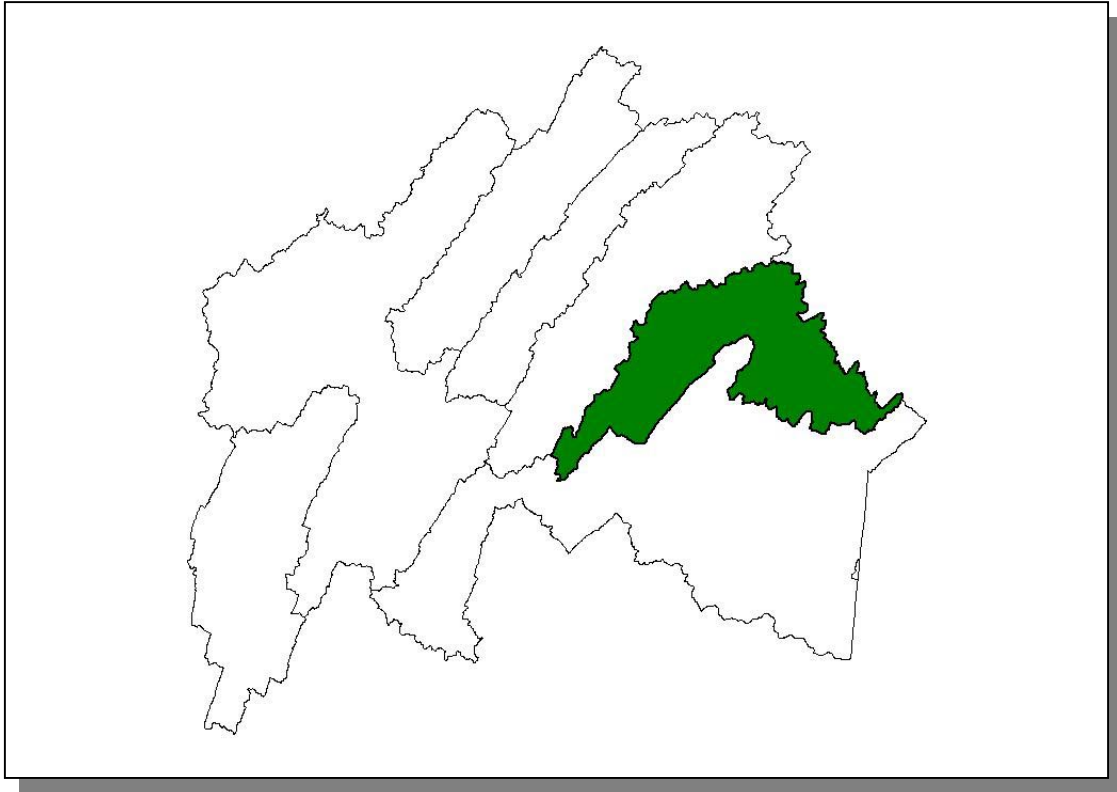
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1
Macon	77.0	77.0	0.6	2.3
Monroe	301.5	279.1	7.4	21.4
Polk	224.7	214.1	6.2	21.1
<b>Totals</b>	<b>695.7</b>	<b>662.7</b>	<b>22.4</b>	<b>62.9</b>

**Table 4-5. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0602000203.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Corn (Row Crops)	7.83
Soybeans (Row Crops)	4.11
Grass (Hayland)	0.26
Legume/Grass (Hayland)	0.14
Grass (Pastureland)	0.96
Grass, Forbs, Legumes (Mixed Pasture)	1.14
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.66
Nonagricultural Land Use	0.00
Conservation Reserve Program Land	0.27
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	6.20
Fruit (Horticultural)	0.19
Other Cropland (Not Planted)	2.93

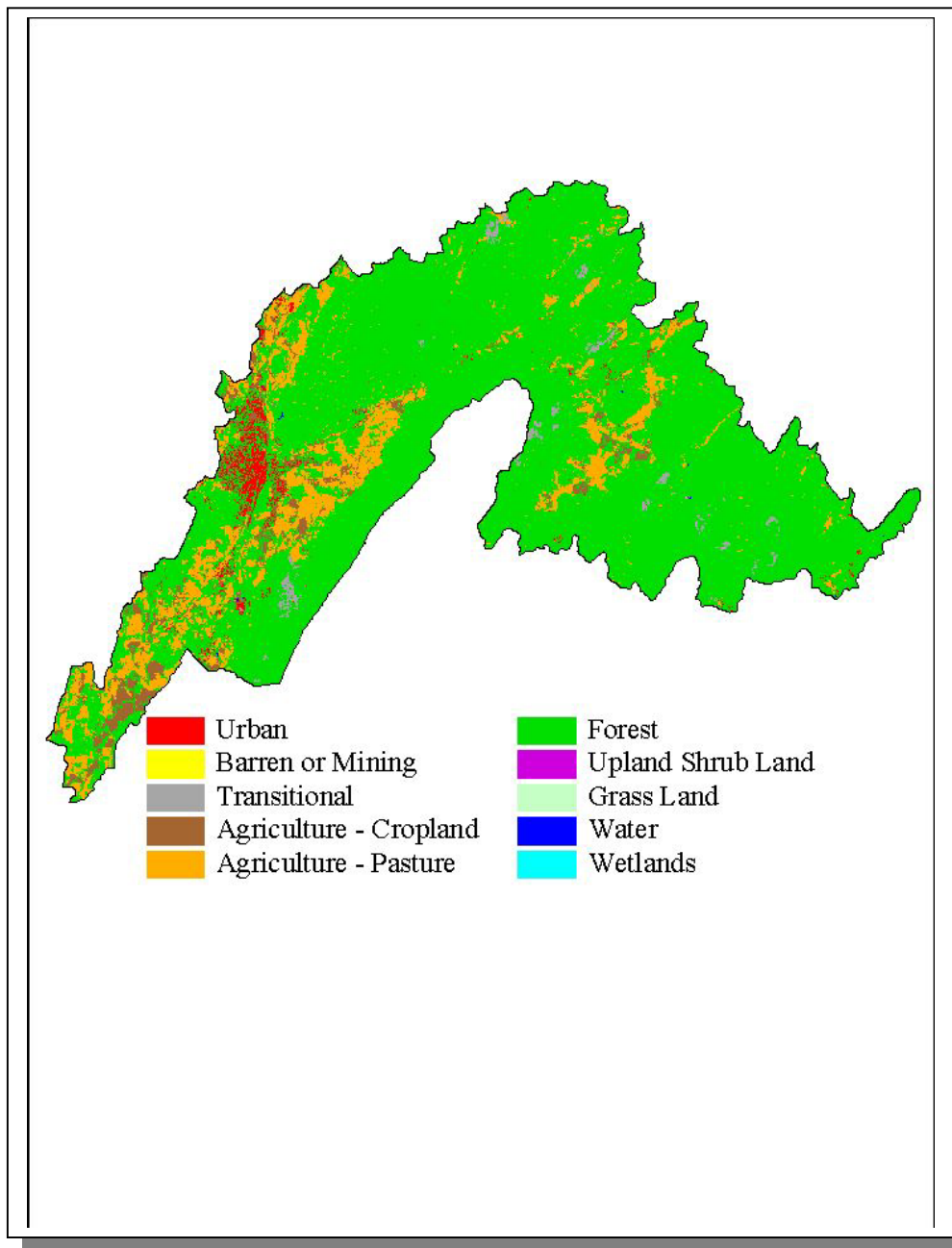
**Table 4-6. Annual Estimated Total Soil Loss in Subwatershed 0602000203.**

**4.2.B. 0602000204.**

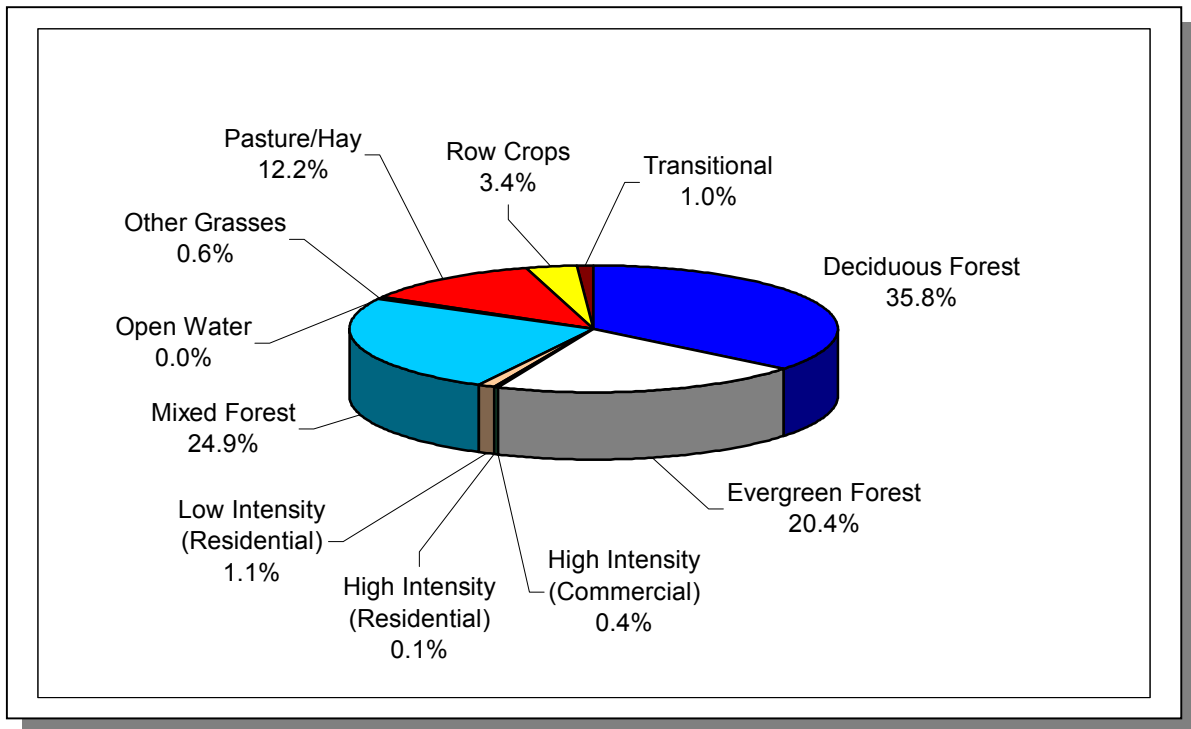


**Figure 4-12. Location of Subwatershed 0602000204.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

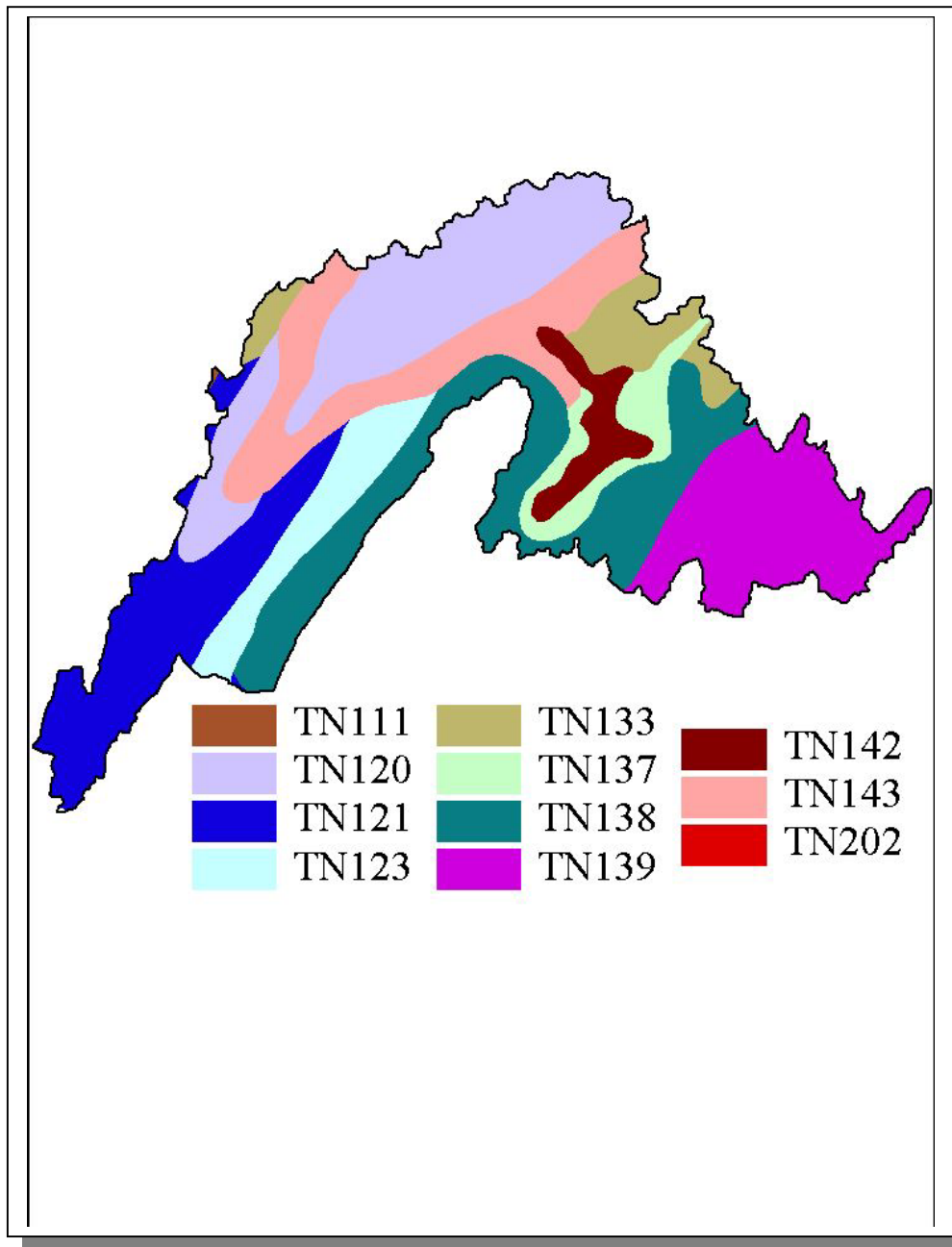
4.2.B.i. General Description.



*Figure 4-13. Illustration of Land Use Distribution in Subwatershed 0602000204.*



**Figure 4-14. Land Use Distribution in Subwatershed 0602000204.** More information is provided in Hiwassee-Appendix IV.



**Figure 4-15. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000204.**



STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN111	0.00	C	1.41	5.10	Loam	0.34
TN120	0.00	B	1.68	5.11	Loam	0.27
TN121	0.00	B	1.30	5.21	Loam	0.33
TN123	6.00	C	1.30	5.81	Silty Loam	0.37
TN133	0.00	C	1.35	6.04	Clayey Loam	0.27
TN137	0.00	C	3.41	5.34	Silty Loam	0.26
TN138	0.00	C	2.48	4.26	Sandy Loam	0.22
TN139	0.00	C	11.84	4.82	Loam	0.20
TN142	0.00	B	2.20	5.78	Loam	0.31
TN143	0.00	C	1.22	6.44	Loam	0.32
TN202	0.00	B	1.30	5.00	Loam	0.33

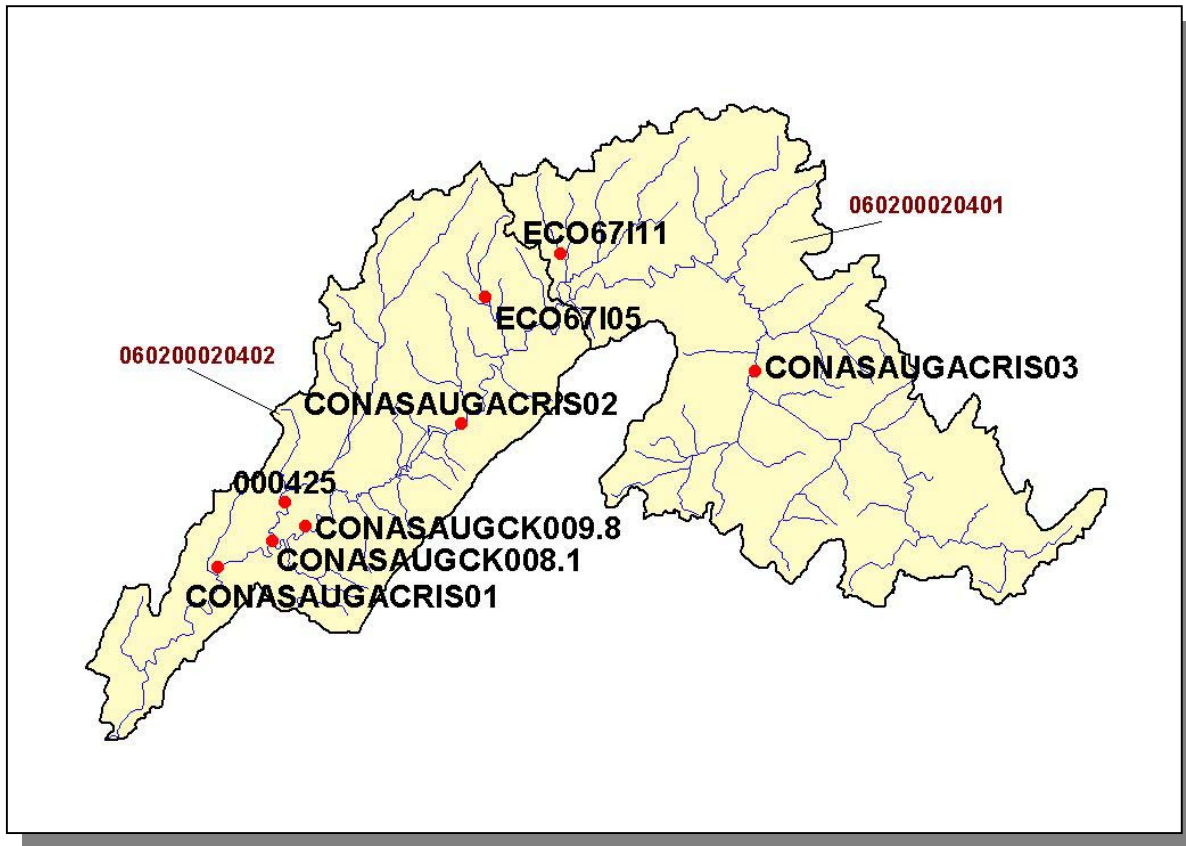
**Table 4-7. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000204.** More information is provided in Hiwassee-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
McMinn	42,383	46,000	11.27	4,776	5,184	8.5
Monroe	30,541	33,953	7.29	2,227	2,476	11.2
Polk	13,643	14,666	1.72	235	253	7.7
<b>Total</b>	<b>86,567</b>	<b>94,619</b>		<b>7,238</b>	<b>7,913</b>	<b>9.3</b>

**Table 4-8. Population Estimates in Subwatershed 0602000204.**

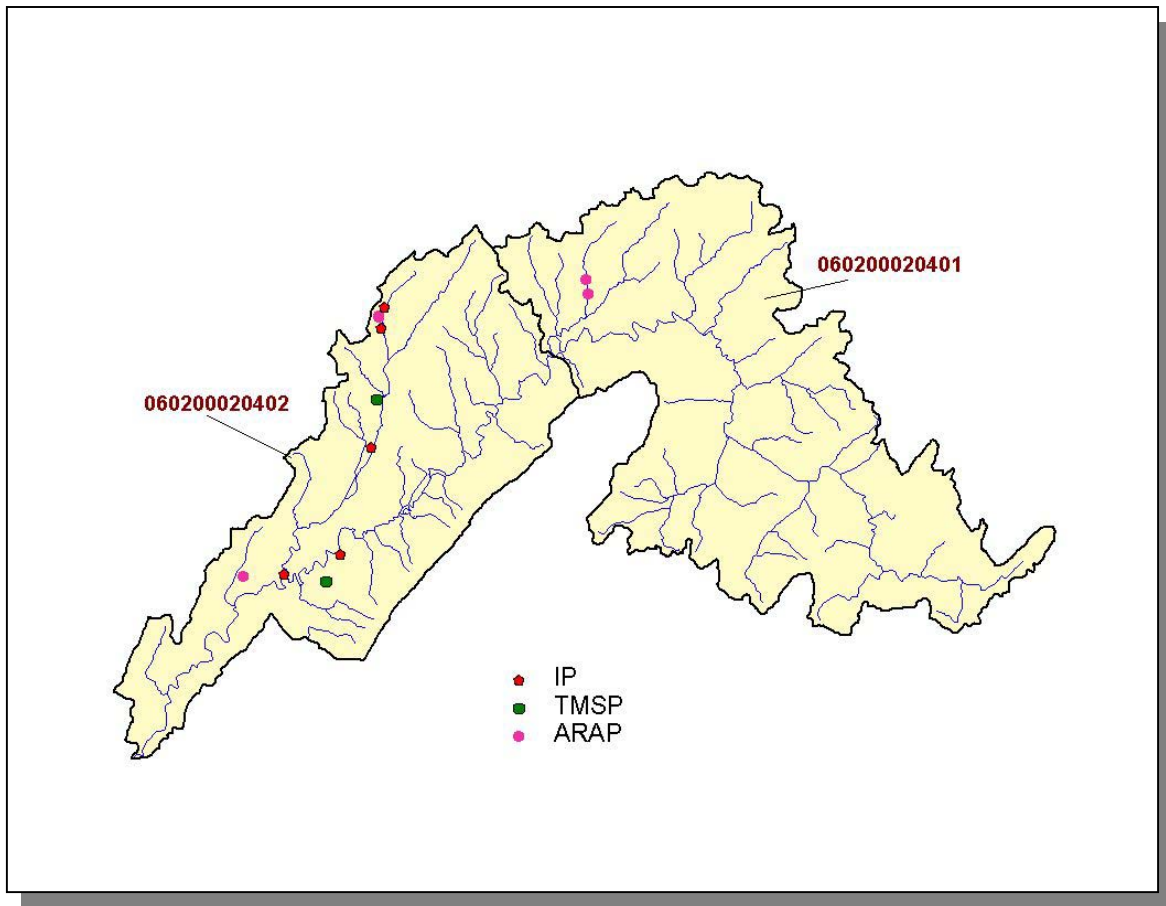
			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
<b>Etowah</b>	<b>McMinn</b>	<b>3,815</b>	<b>1,737</b>	<b>1,606</b>	<b>131</b>	<b>0</b>

**Table 4-9. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000204.**

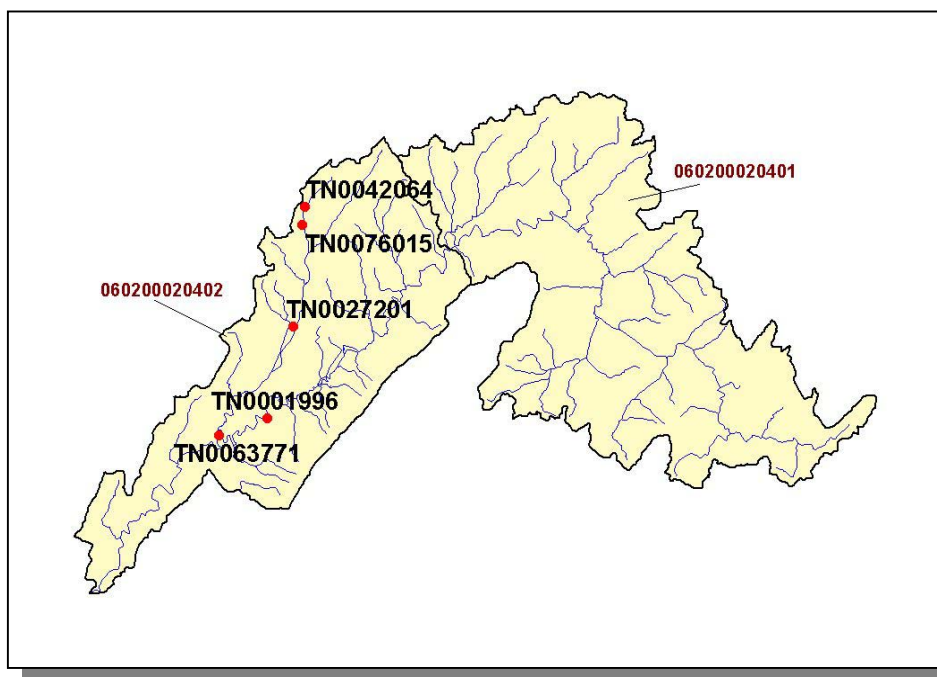


**Figure 4-16. Location of STORET Monitoring Sites in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

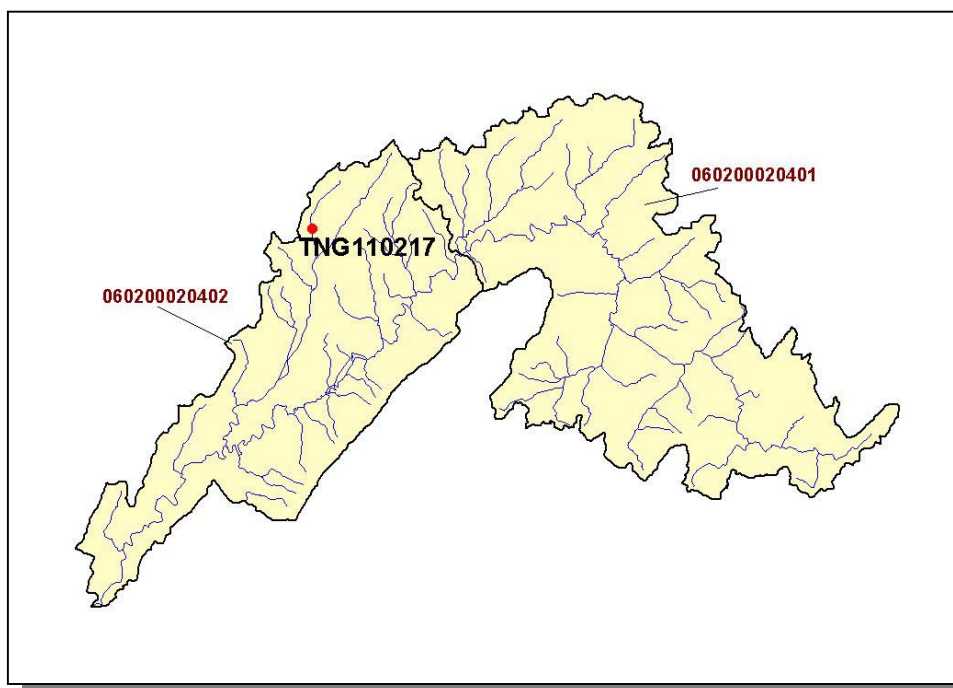
**4.2.B.ii.** Point Source Contributions.



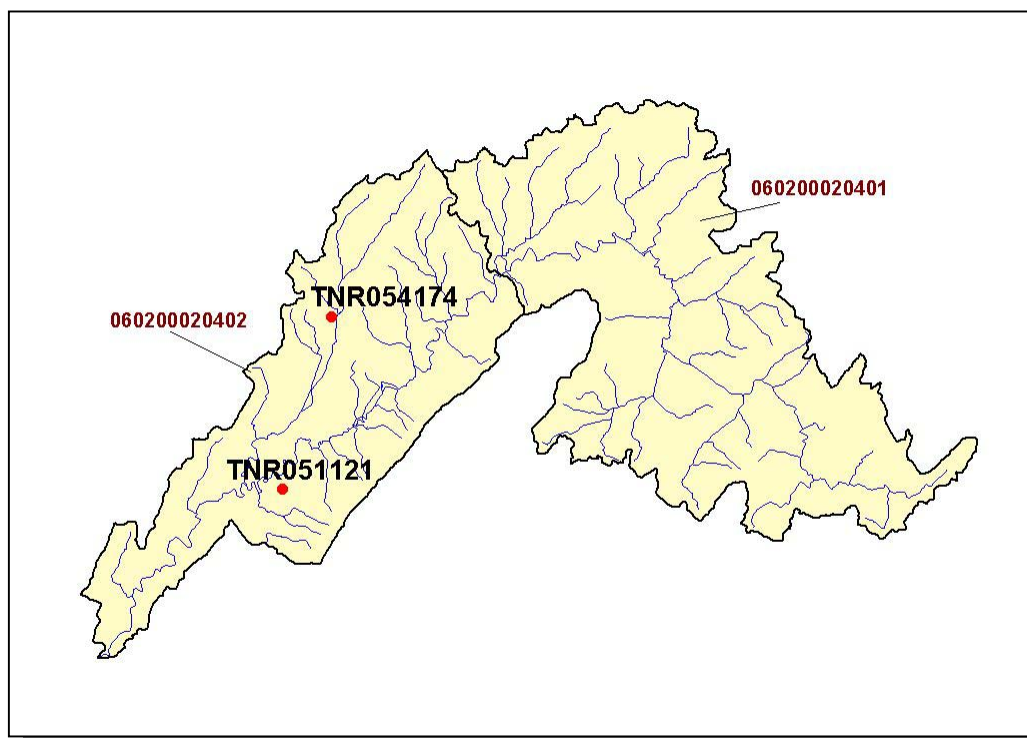
**Figure 4-17. Location of Active Point Source Facilities in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. More information is provided in the following figures.



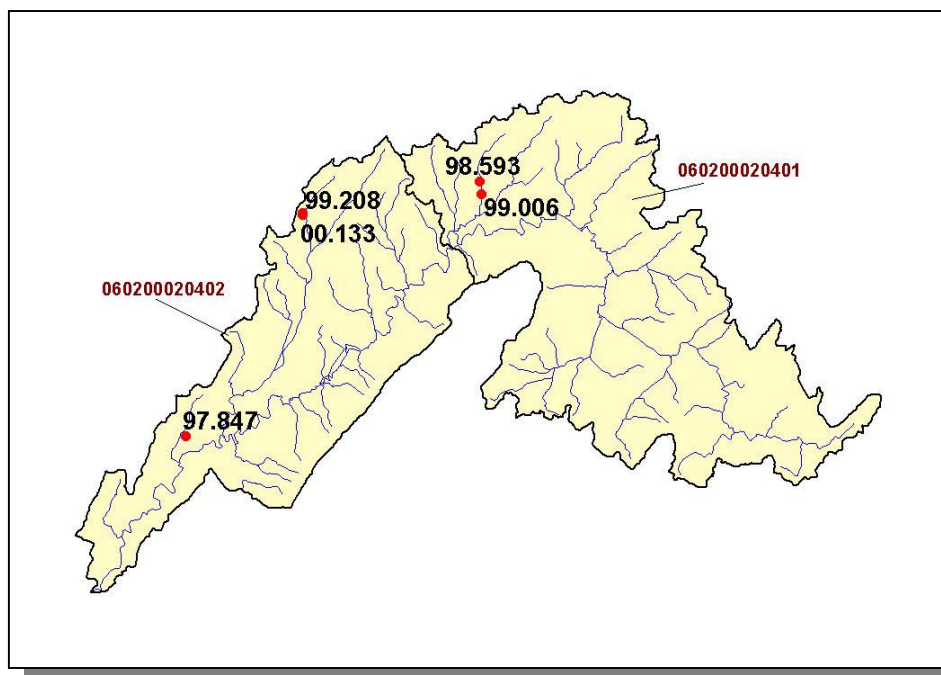
**Figure 4-18. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-19. Location of Ready Mix Concrete Facilities in Subwatershed 0602000204.** Subwatersheds 060200020401 and 060200020402 are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-20. Location of TMSP Facilities in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

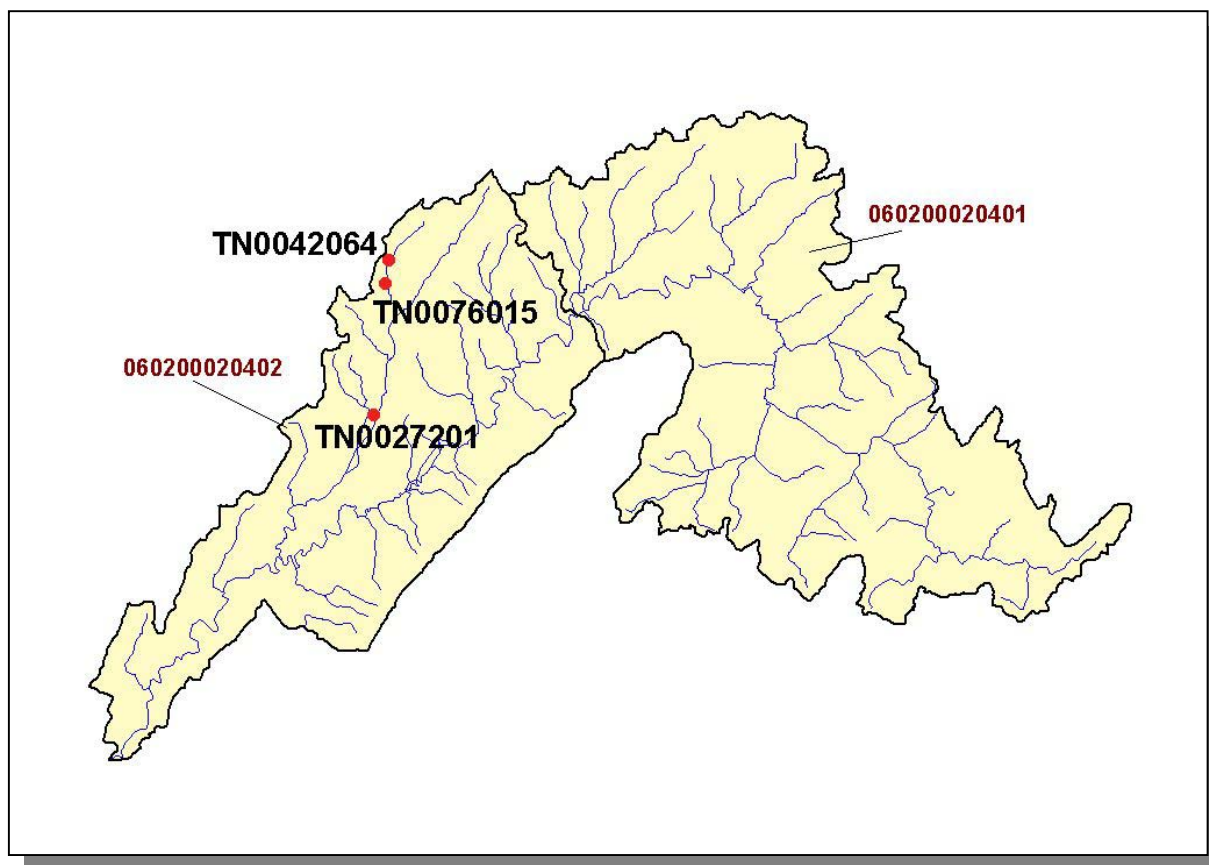


**Figure 4-21. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List**

There are three NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0602000204:

- TN0027201 (CSX Transportation) discharges to Cane Creek @ RM 4.5
- TN0042064 (Johns Manville) discharges to Crockett Springs Branch @ RM 1.2
- TN0076015 (Waupaca Foundry) discharges to Crockett Springs Branch



**Figure 4-22. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0602000204.** Subwatershed 060200020401 and 060200020402 boundaries are shown for reference. The names of facilities are provided in Hiwassee-Appendix IV.



PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0027201	0.33	0.34	0.35	0.32	0.02750
TN0042064				0.07	0.09688
TN0076015	0.00	0.00	0.00	0.00	1.94000

**Table 4-10. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000204.** Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	COD	Al	Fe	Cu	Zn
TN0027201	X				
TN0076015		X	X	X	X

**Table 4-11. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000204.** COD, Chemical Oxygen Demand.

PERMIT #	TSS	pH	WET	NH <sub>3</sub>	Cu	OIL and GREASE	TSS	DO	BOD <sub>5</sub>
TN0027201	X	X				X			
TN0042064		X	X	X	X		X	X	X
TN0076015		X	X			X	X		

**Table 4-12. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000204.** TSS, Total Suspended Solids; WET, Whole Effluent Toxicity; TSS, Total Suspended Solids; DO, Dissolved Oxygen; BOD<sub>5</sub>, Biochemical Oxygen Demand (5-Day).



**4.2.B.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
1,762	4,817	860	6	987,001	38	6

**Table 4-13. Summary of Livestock Count Estimates in Subwatershed 0602000204.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

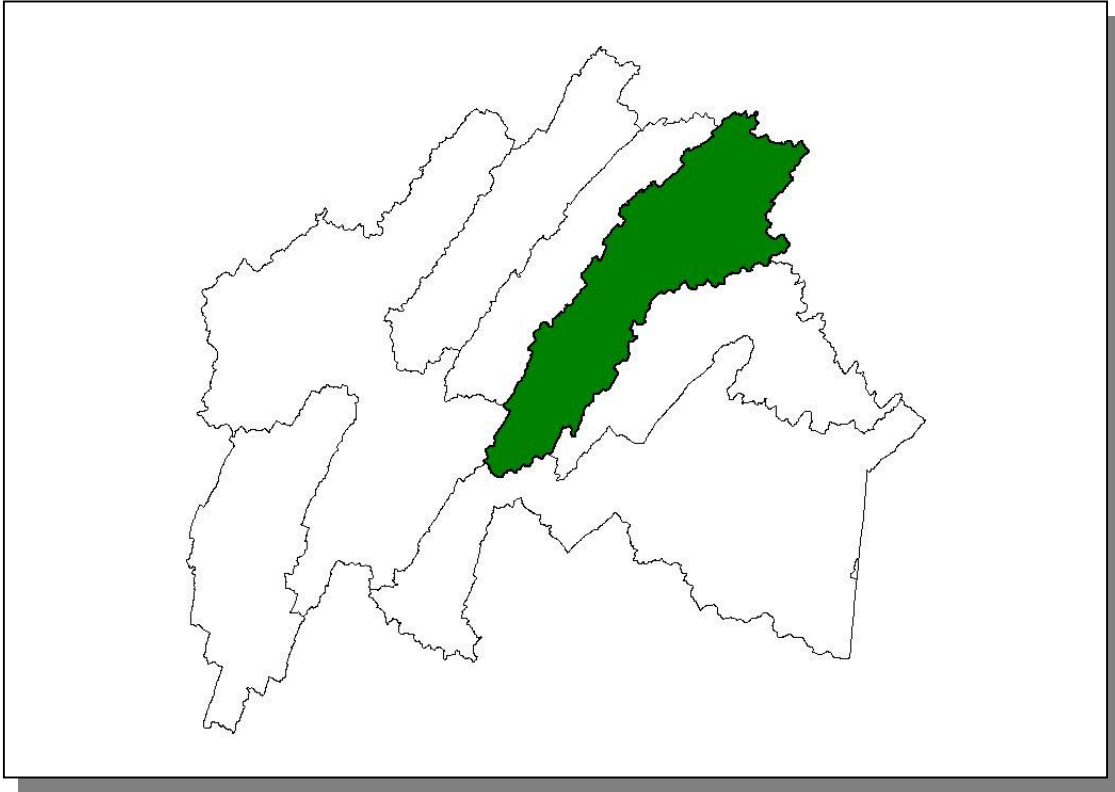
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Monroe	301.5	279.1	7.4	21.4
Polk	224.7	214.1	6.2	21.1
<b>Total</b>	<b>526.2</b>	<b>493.2</b>	<b>13.6</b>	<b>42.5</b>

**Table 4-14. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000204.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Legume Grass (Hayland)	0.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.67
Non Agricultural Land Use	0.00
Corn (Row Crops)	15.72
Soybeans (Row Crops)	11.39
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	6.20
Grass (Hayland)	0.36
Fruit (Horticulture)	0.19
Grass (Pastureland)	0.52
Grass, Forbs, Legumes (Mixed Pasture)	0.60

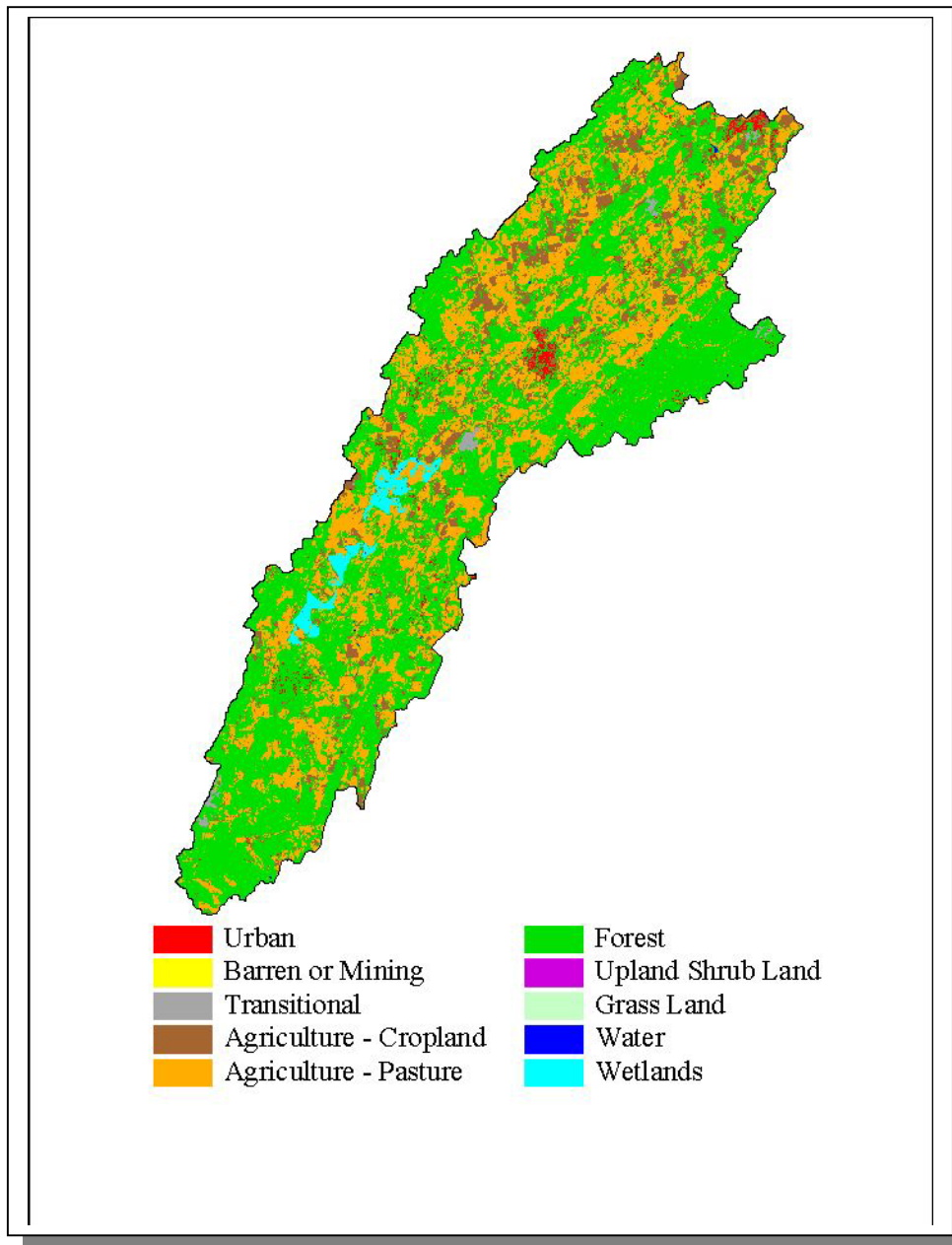
**Table 4-15. Annual Estimated Total Soil Loss in Subwatershed 0602000204.**

**4.2.C. 0602000205.**

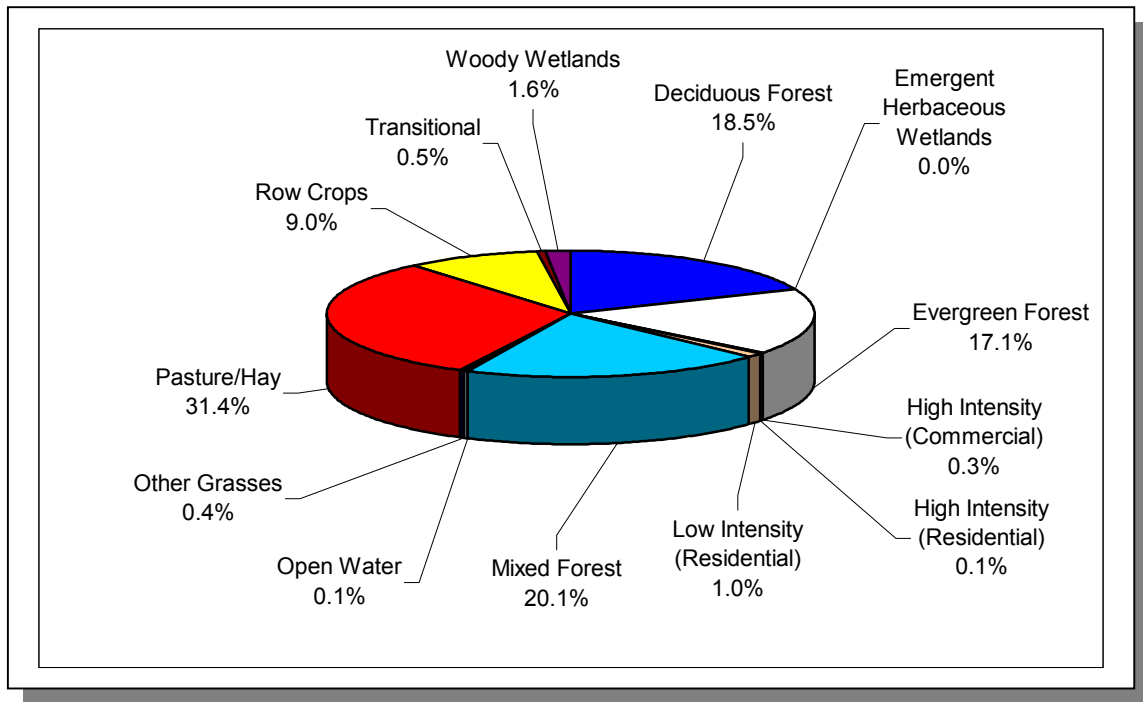


**Figure 4-23. Location of Subwatershed 0602000205.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

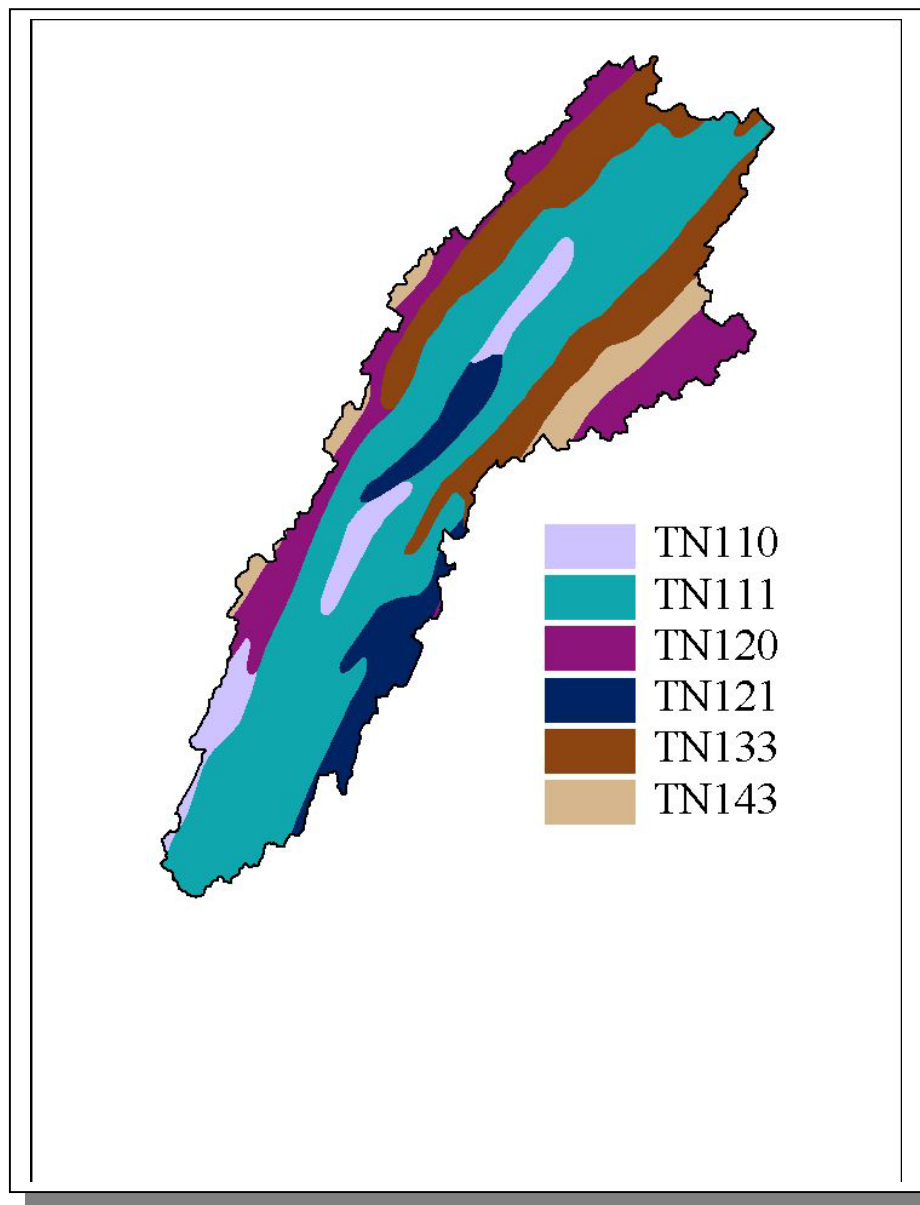
4.2.C.i. General Description.



**Figure 4-24. Illustration of Land Use Distribution in Subwatershed 0602000205.**



**Figure 4-25. Land Use Distribution in Subwatershed 0602000205.** More information is provided in Hiwassee-Appendix IV.



**Figure 4-26. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000205.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN110	0.00	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN120	0.00	B	1.68	5.11	Loam	0.27
TN121	0.00	B	1.30	5.21	Loam	0.33
TN133	0.00	C	1.35	6.04	Clayey Loam	0.27
TN143	0.00	C	1.22	6.44	Loam	0.32

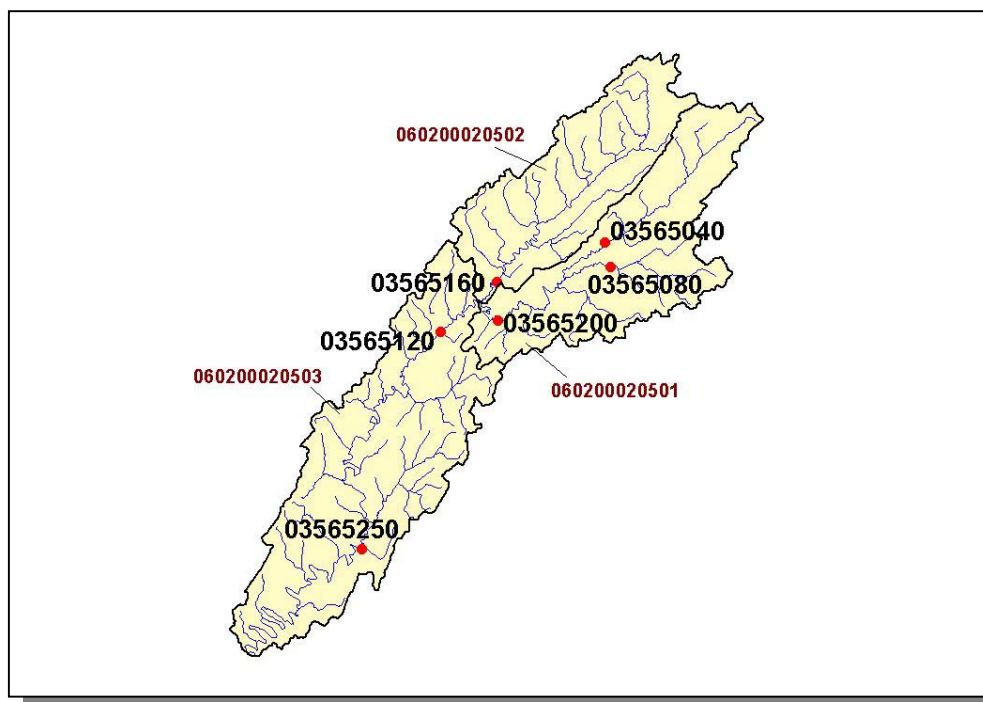
**Table 4-16. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000205.** More information is provided in Hiwassee-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Bradley	73,712	80,800	0.01	5	6	20.0
McMinn	42,383	46,000	21.55	9,131	9,911	8.5
Monroe	30,541	33,953	4.76	1,454	1,616	11.1
Polk	13,643	14,666	2.03	277	298	7.6
<b>Total</b>	<b>160, 279</b>	<b>175,419</b>		<b>10,867</b>	<b>11,831</b>	<b>8.9</b>

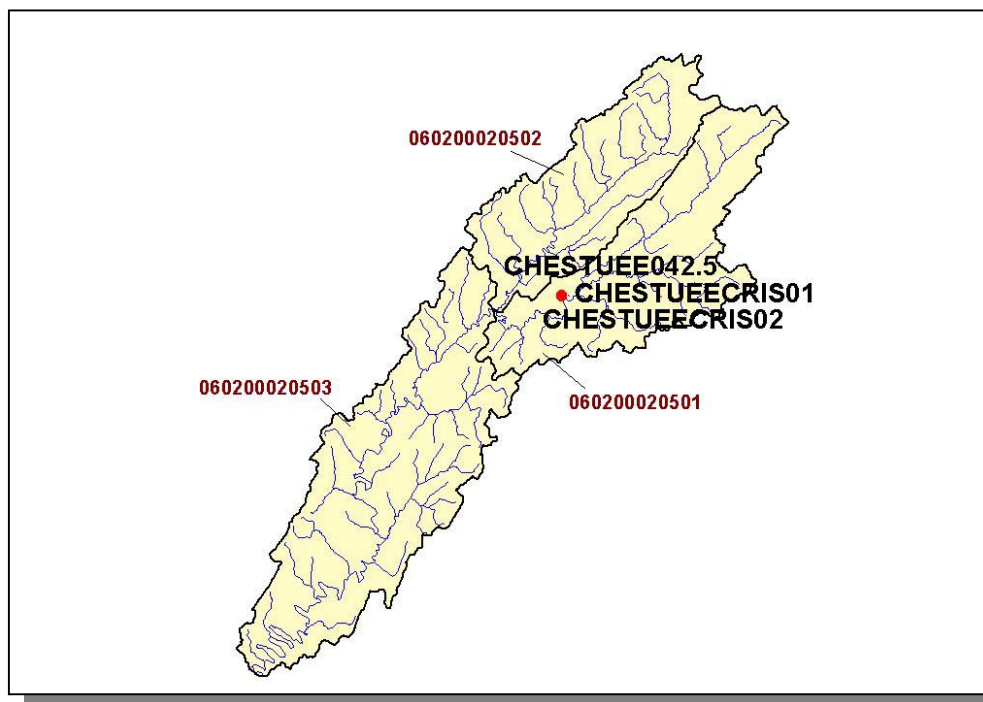
*Table 4-17. Population Estimates in Subwatershed 0602000205.*

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Madisonville	Monroe	3,137	1,360	893	467	0
Etowah	McMinn	3,815	1,737	1,606	131	0
<b>Totals</b>		<b>6,952</b>	<b>3,097</b>	<b>2,499</b>	<b>598</b>	<b>0</b>

*Table 4-18. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000205.*



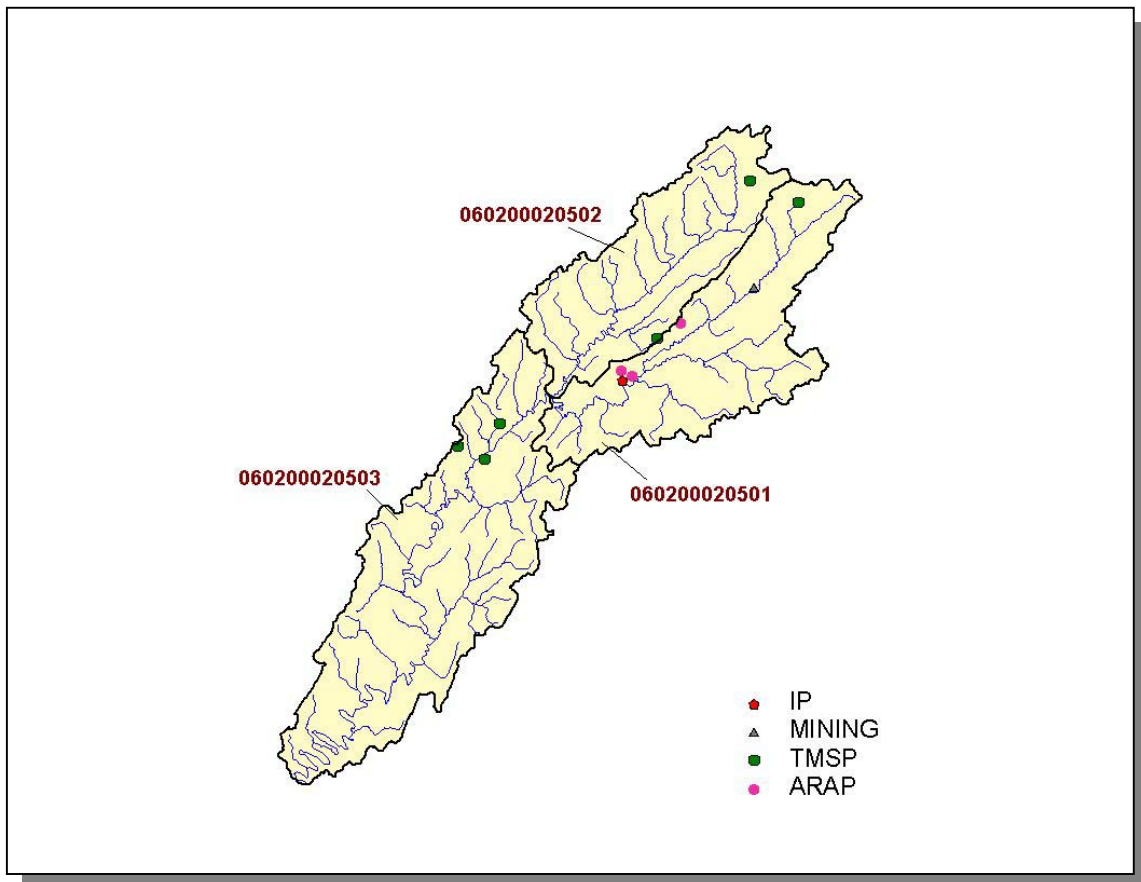
**Figure 4-27. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502 and 060200020503 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



**Figure 4-28. Location of Storet Monitoring Sites in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502 and 060200020503 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



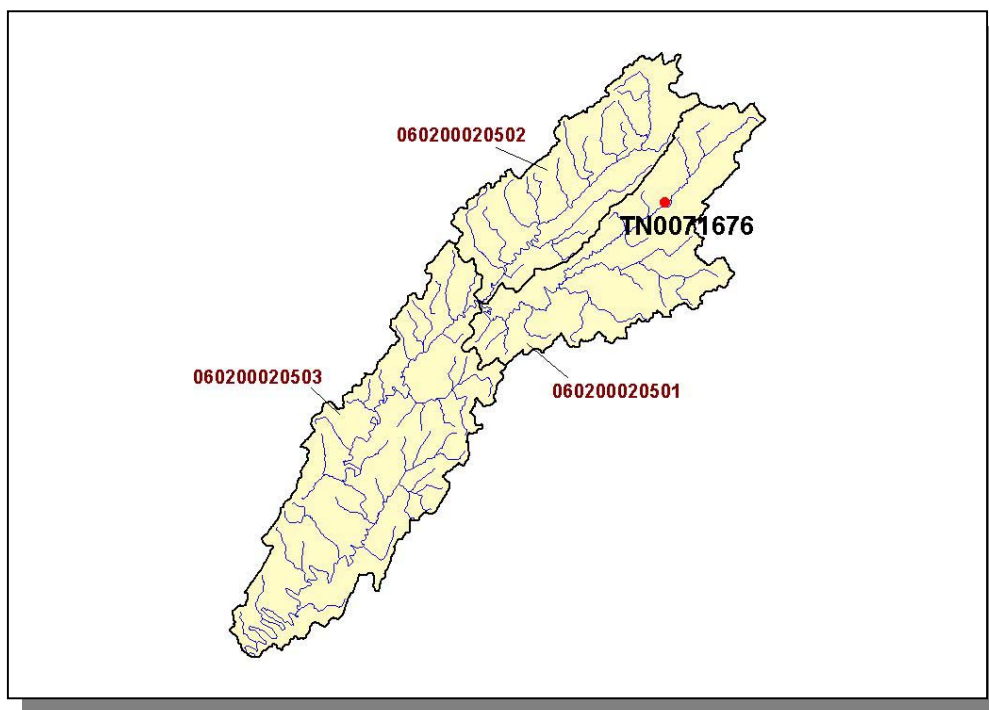
**4.2.C.ii.** Point Source Contributions.



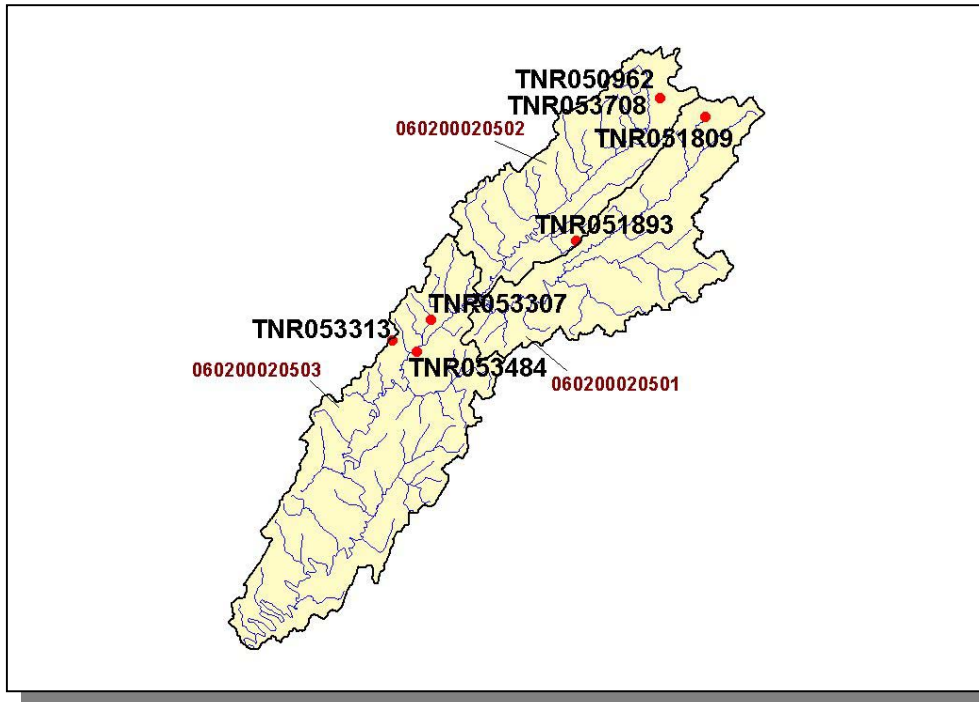
**Figure 4-29. Location of Active Point Source Facilities in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502, and 060200020503 boundaries are shown for reference. More information is provided in the following figures.



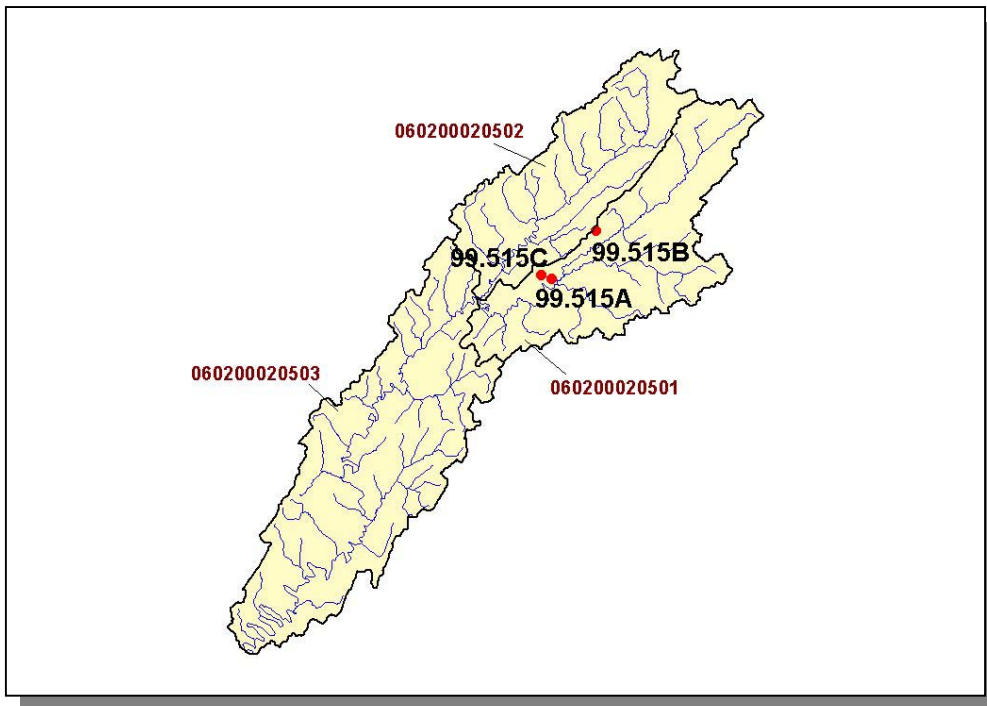
**Figure 4-30. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502, and 060200020503 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-31. Location of Active Mining Sites in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502, and 060200020503 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-32. Location of TMSP Facilities in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502, and 060200020503 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-33. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000205.** Subwatershed 060200020501, 060200020502, and 060200020503 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.C.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
6,081	16,043	2,690	17	1,861,245	144	19

**Table 4-19. Summary of Livestock Count Estimates in Subwatershed 0602000205.**  
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

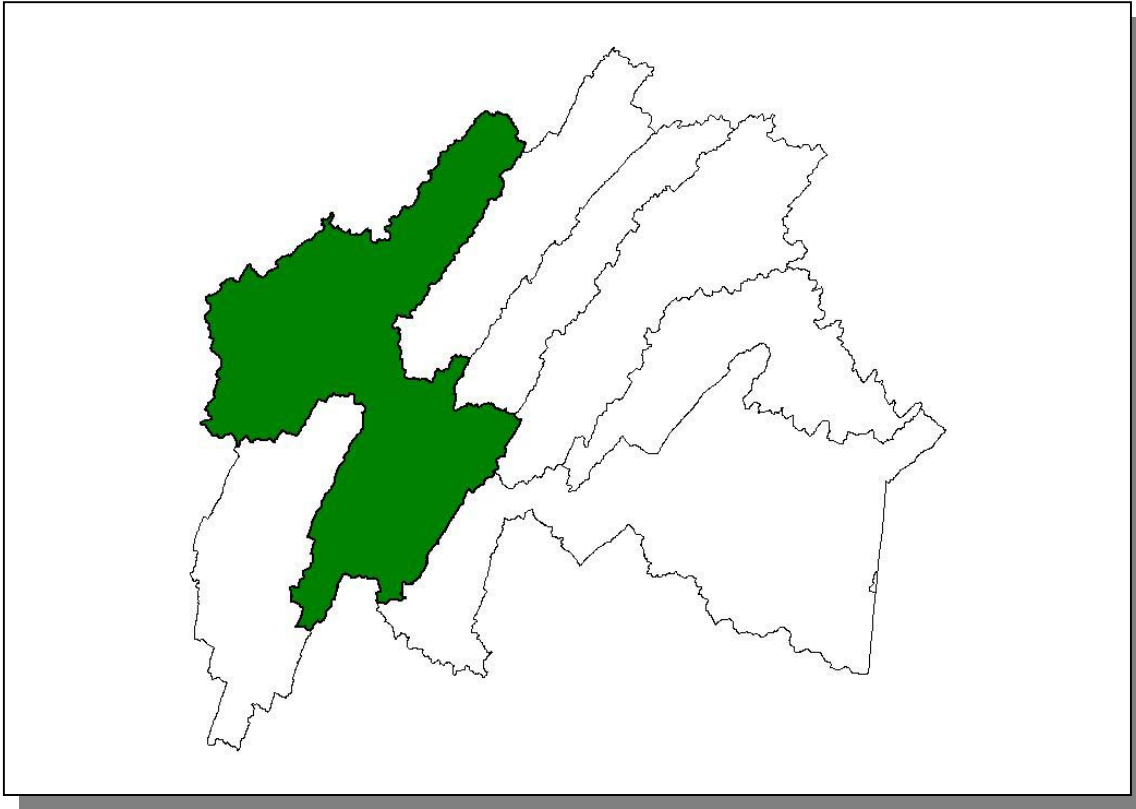
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1
Monroe	301.5	279.1	7.4	21.4
Polk	224.7	214.1	6.2	21.1
<b>Totals</b>	<b>618.7</b>	<b>585.7</b>	<b>21.8</b>	<b>60.6</b>

**Table 4-20. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000205.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Soybeans (Row Crops)	10.50
Nonagricultural Land Use	0.00
Legume (Hayland)	0.36
Grass (Pastureland)	0.47
Grass, Forbs, Legumes (Mixed Pasture)	0.65
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.85
Corn (Row Crops)	14.79
Legume Grass (Hayland)	0.48
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	6.20
Conservation Reserve Program Land	0.27

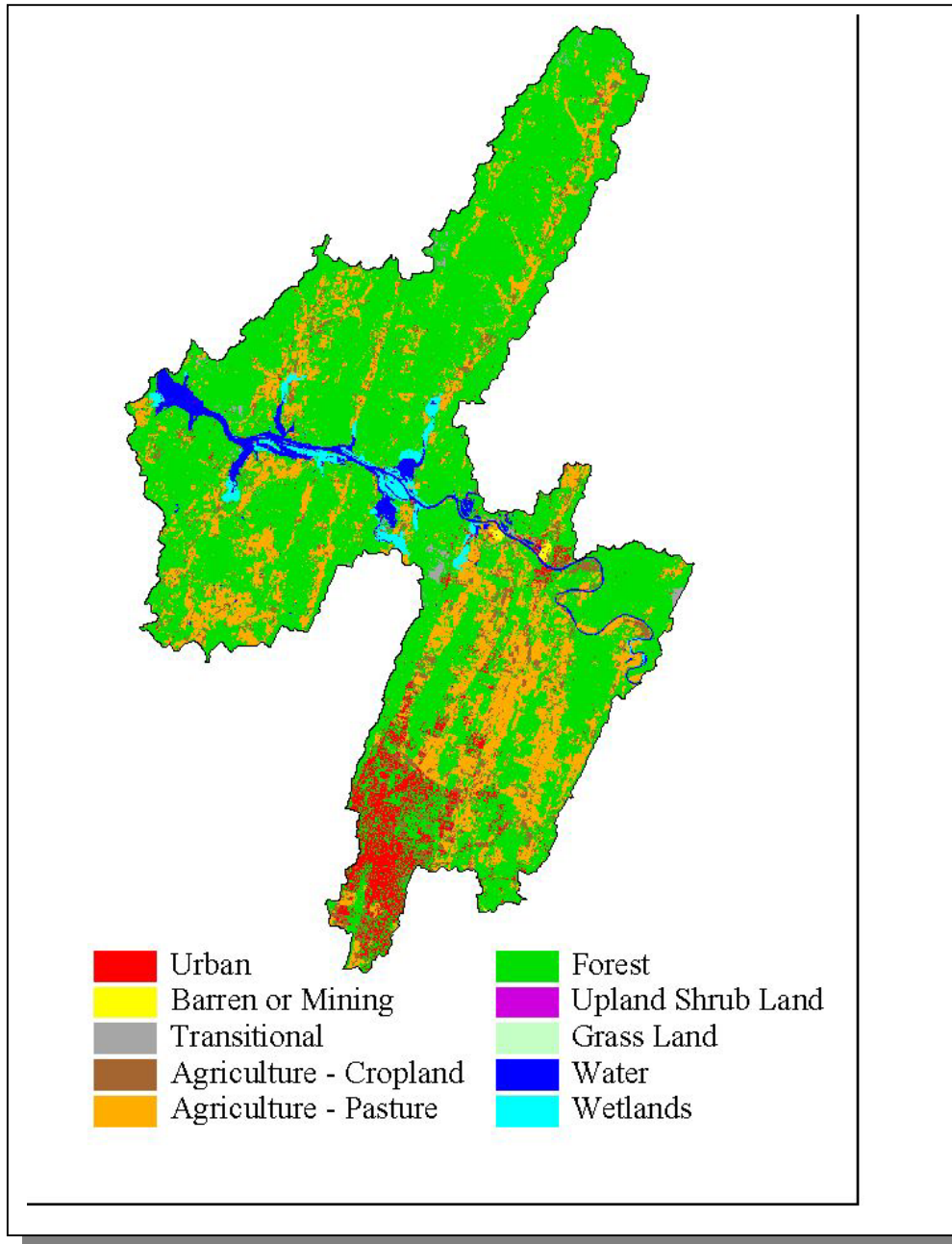
**Table 4-21. Annual Estimated Total Soil Loss in Subwatershed 0602000205.**

**4.2.D. 0602000206.**

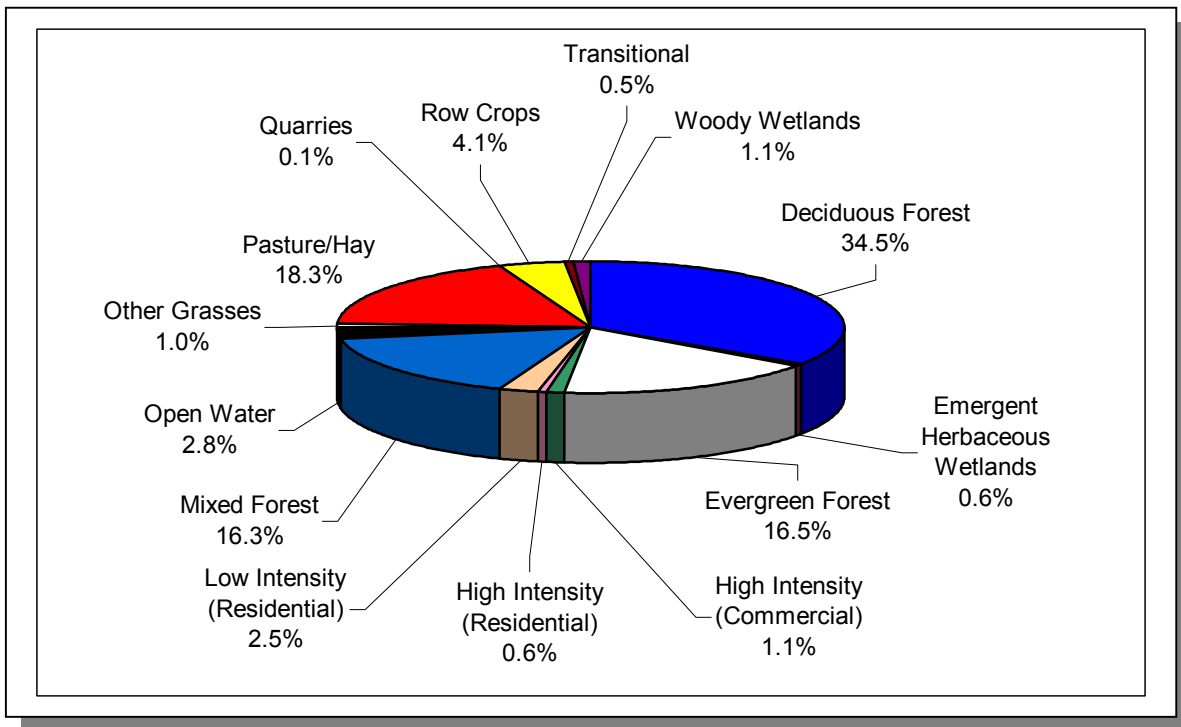


**Figure 4-34. Location of Subwatershed 0602000206.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

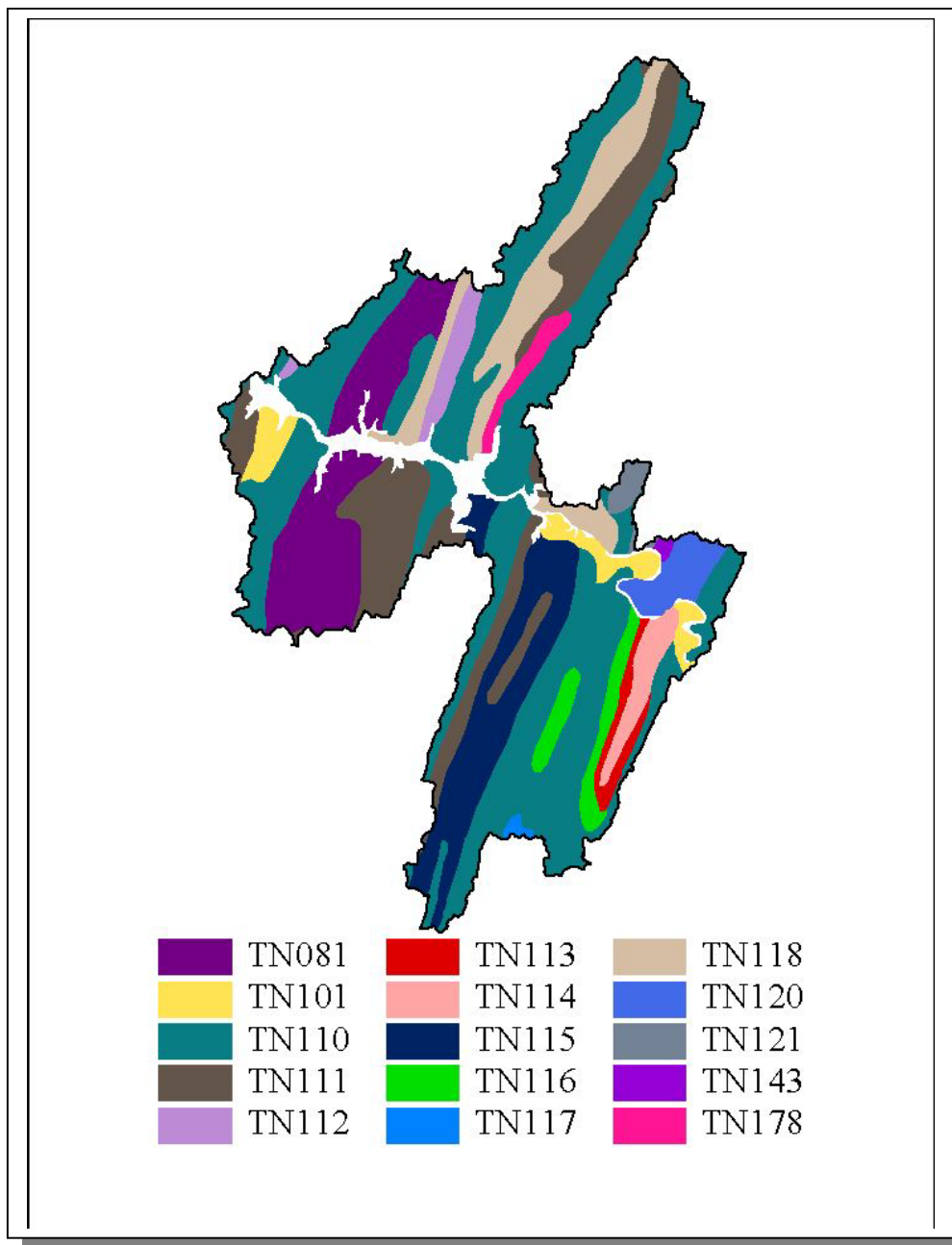
4.2.D.i. General Description.



**Figure 4-35. Illustration of Land Use Distribution in Subwatershed 0602000206.**



**Figure 4-36. Land Use Distribution in Subwatershed 0602000206.** More information is provided in Hiwassee-Appendix IV.



**Figure 4-37. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000206.**



STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN081	2.00	C	1.41	5.48	Silty Loam	0.35
TN101	0.00	B	1.71	5.39	Loam	0.35
TN110	0.00	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN112	2.00	C	2.36	5.09	Loam	0.35
TN113	0.00	C	1.29	6.52	Sandy Clay	0.22
TN114	1.00	B	1.31	5.11	Loam	0.27
TN115	0.00	C	1.41	5.15	Silty Loam	0.36
TN116	2.00	B	1.57	5.59	Loam	0.33
TN117	1.00	C	2.06	5.16	Loam	0.37
TN118	0.00	C	6.52	5.12	Loam	0.29
TN120	0.00	B	1.68	5.11	Loam	0.27
TN121	0.00	B	1.30	5.21	Loam	0.33
TN143	0.00	C	1.22	6.44	Loam	0.32
TN178	8.00	C	1.46	5.45	Loam	0.28

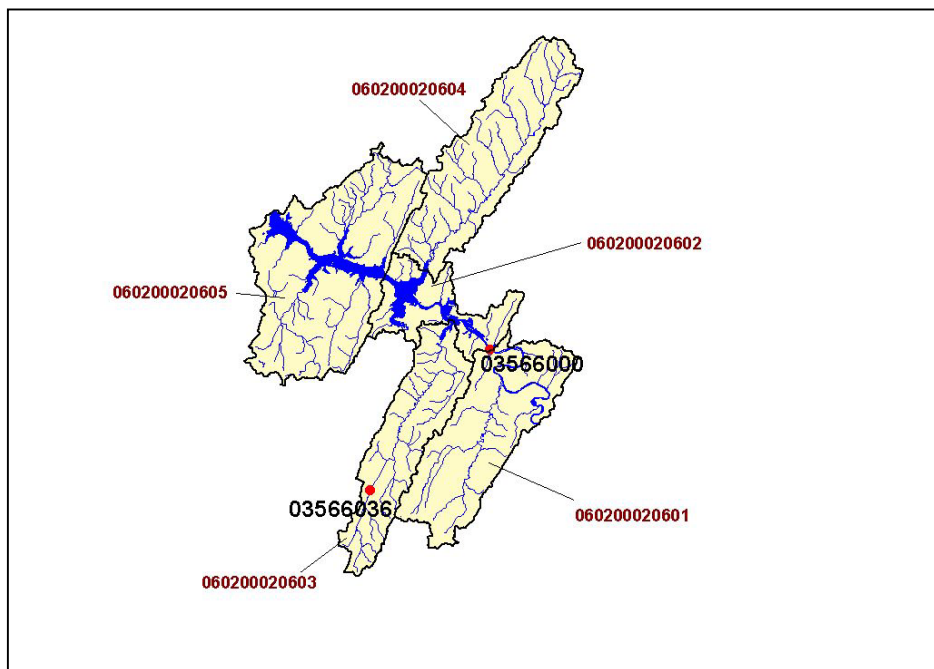
**Table 4-22. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000206.** More information is provided in Hiwassee-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Bradley	73,712	80,800	32.65	24,064	26,378	9.6
Hamilton	285,536	294,865	2.31	6,585	6,800	3.3
McMinn	42,383	46,000	16.13	6,836	7,420	8.5
Meigs	8,033	9,690	26.31	2,113	2,549	20.6
Polk	13,643	14,666	0.11	15	16	6.7
<b>Total</b>	<b>423,307</b>	<b>446,021</b>		<b>39,613</b>	<b>43,163</b>	<b>9.0</b>

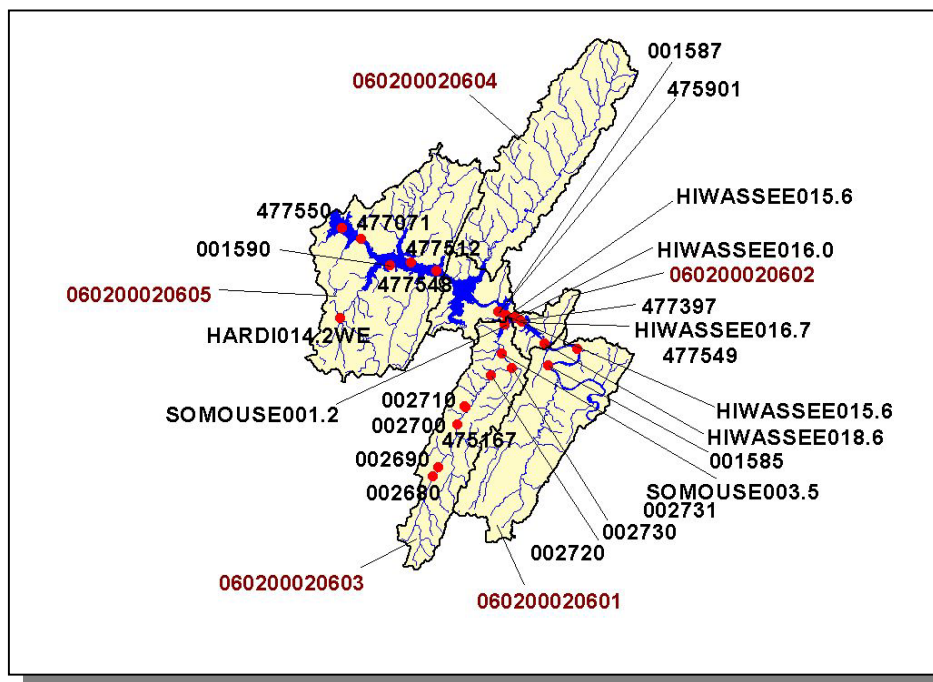
**Table 4-23. Population Estimates in Subwatershed 0602000206.**

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Calhoun	McMinn	570	222	3	217	2
Charleston	Bradley	661	276	15	259	2
Cleveland	Bradley	30,333	13,045	12,033	1,007	5
<b>Total</b>		<b>31,564</b>	<b>13,543</b>	<b>12,051</b>	<b>1,483</b>	<b>9</b>

**Table 4-24. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000206.**

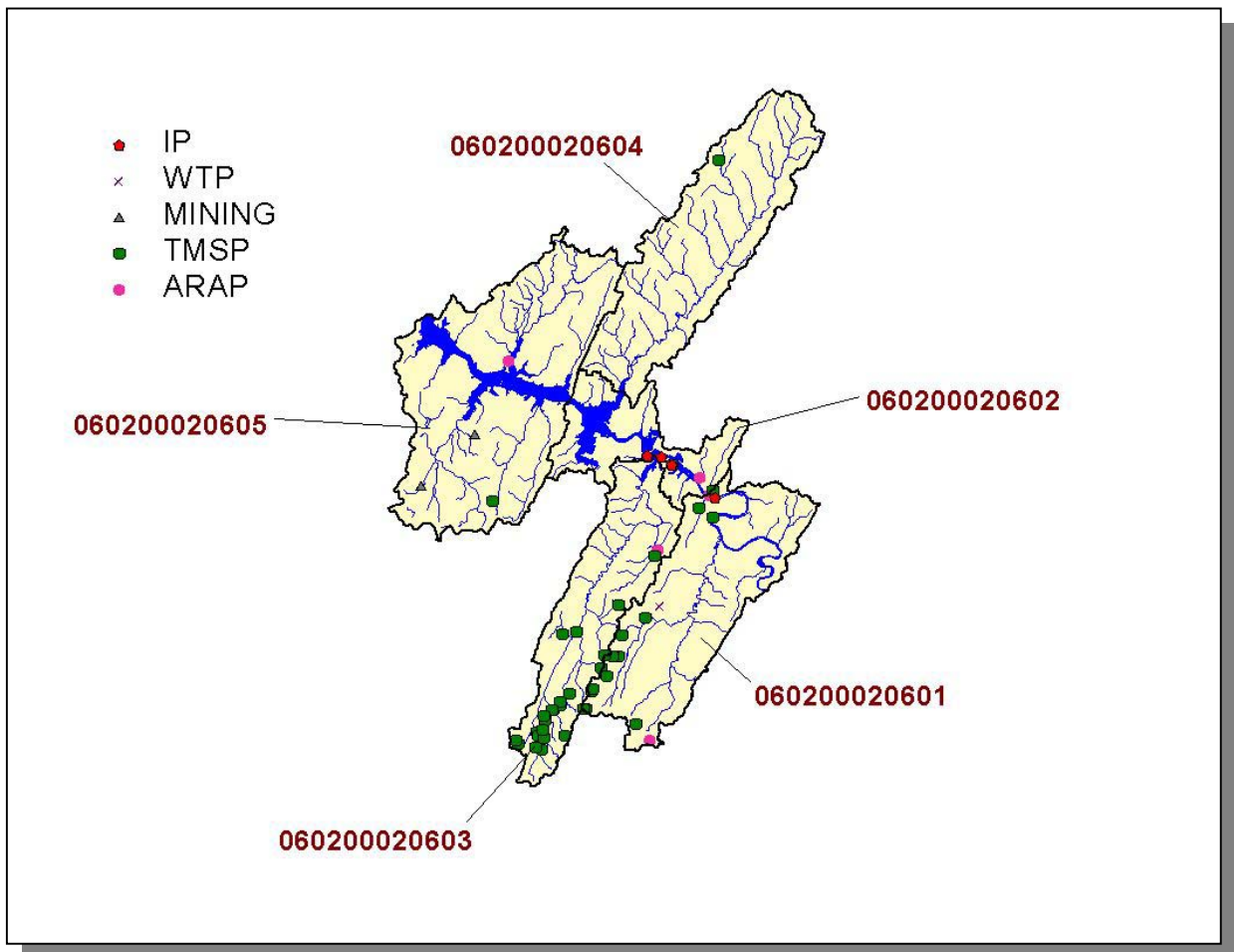


**Figure 4-38. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

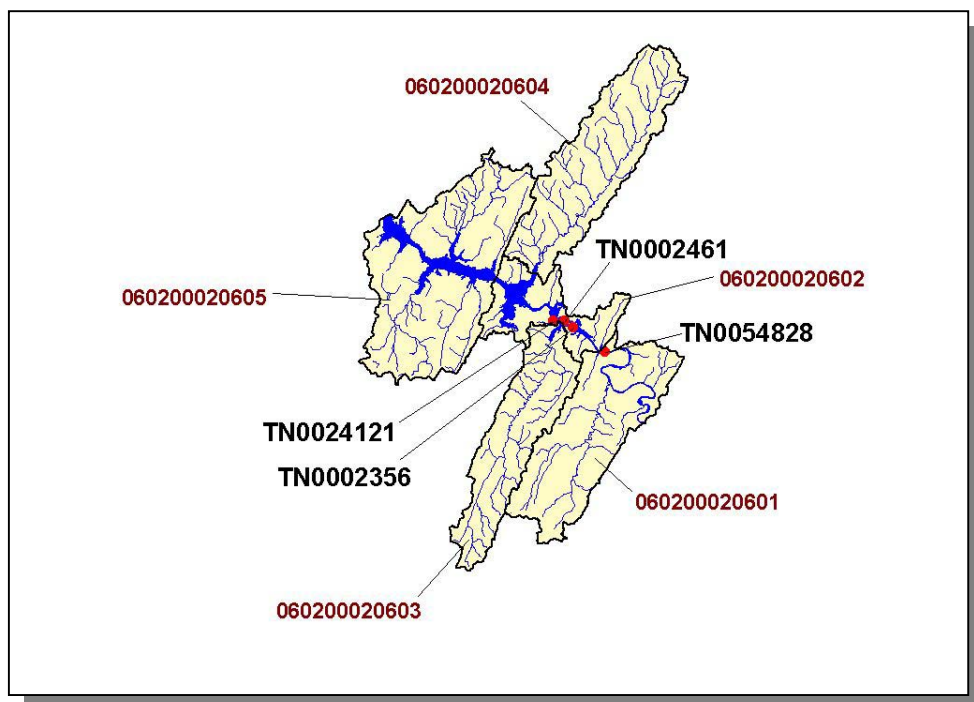


**Figure 4-39. Location of STORET Monitoring Sites in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

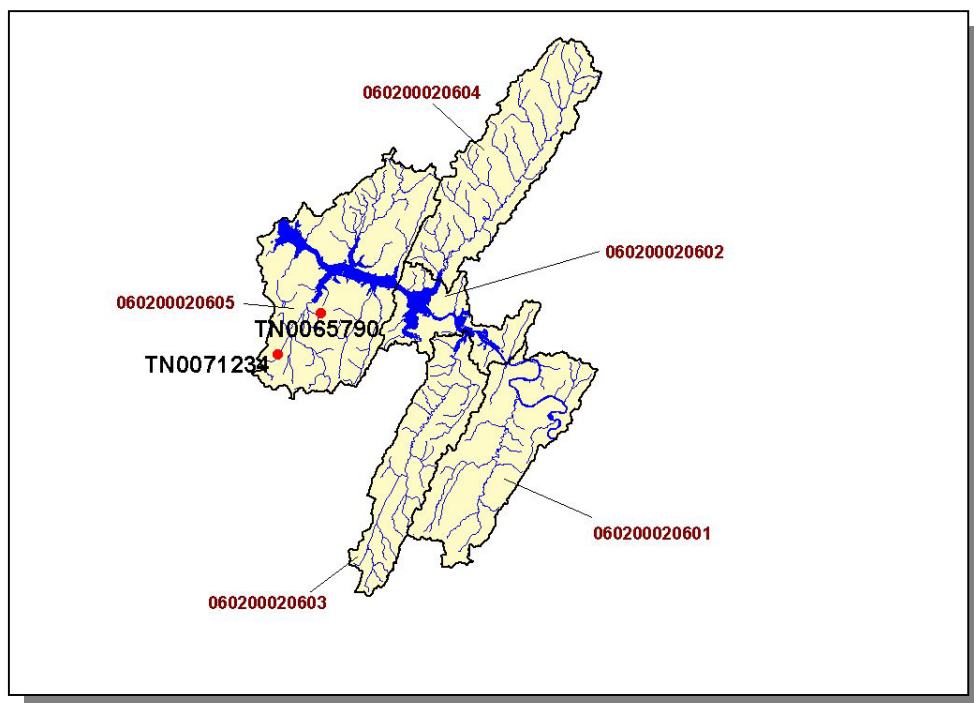
4.2.D.ii. Point Source Contributions.



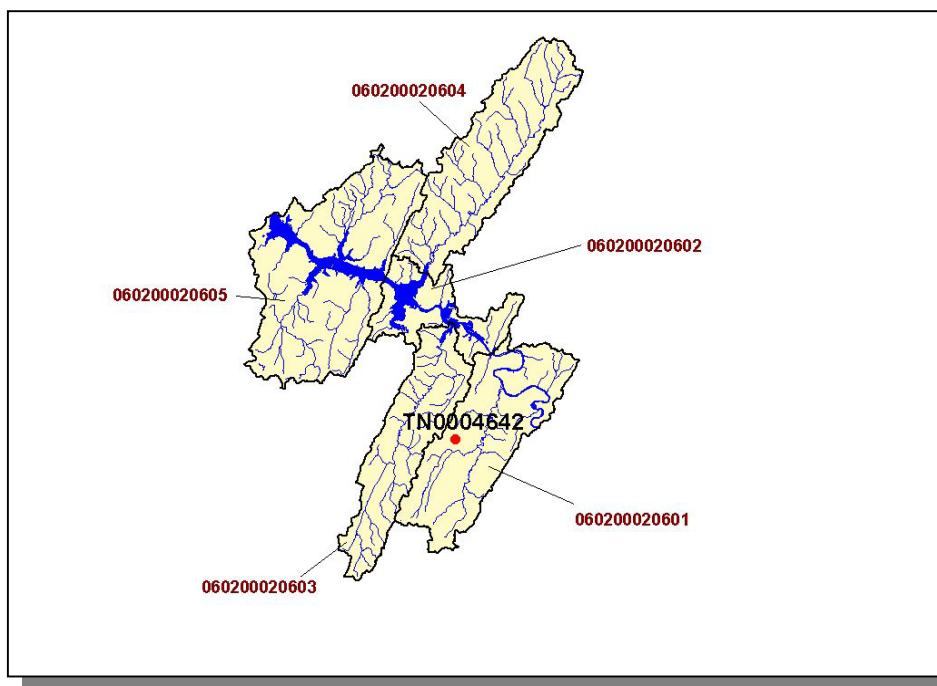
**Figure 4-40. Location of Active Point Source Facilities in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. Purple crosses. More information is provided in the following figures.



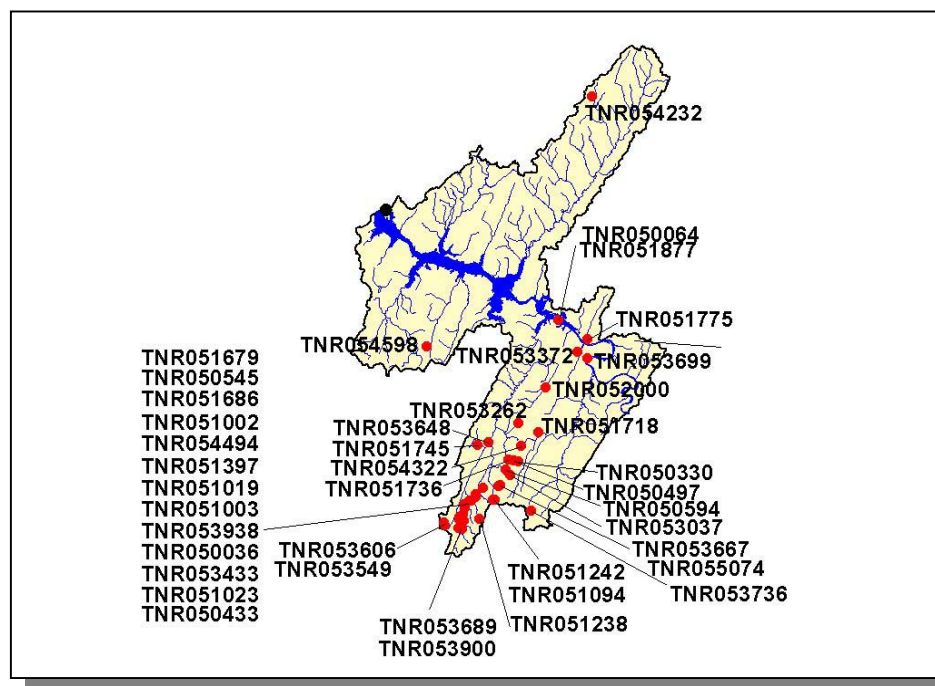
**Table 4-25. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 060200020606.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



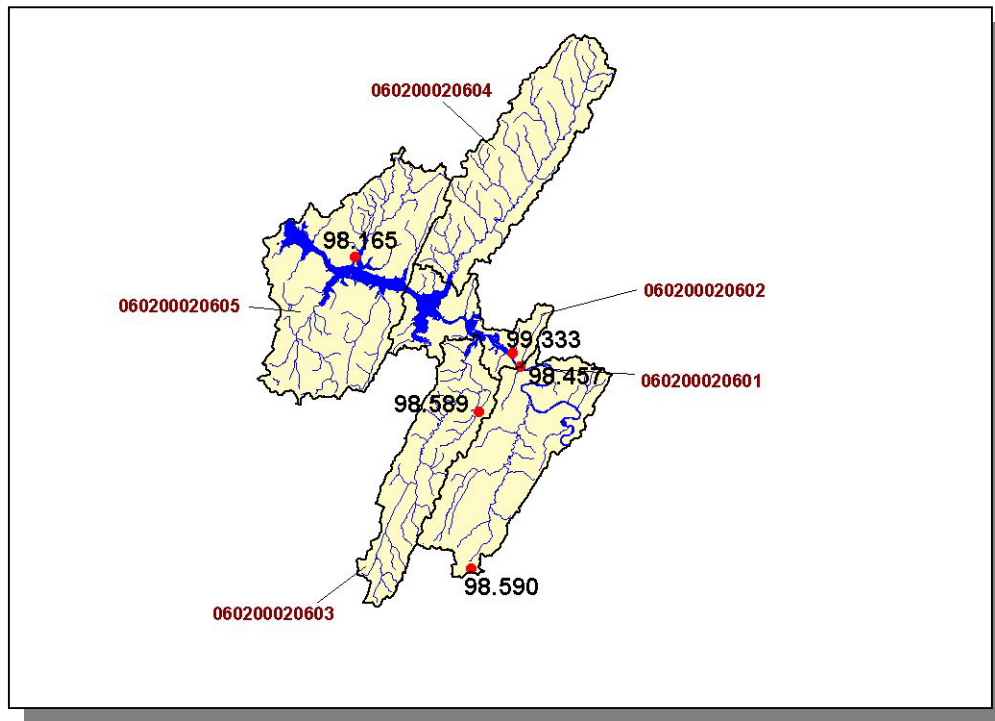
**Figure 4-41. Location of Active Mining Sites in Subwatershed 060200020606.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



**Figure 4-42. Location of Water Treatment Plant Sites in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



**Figure 4-43. Location of TMSP Facilities in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



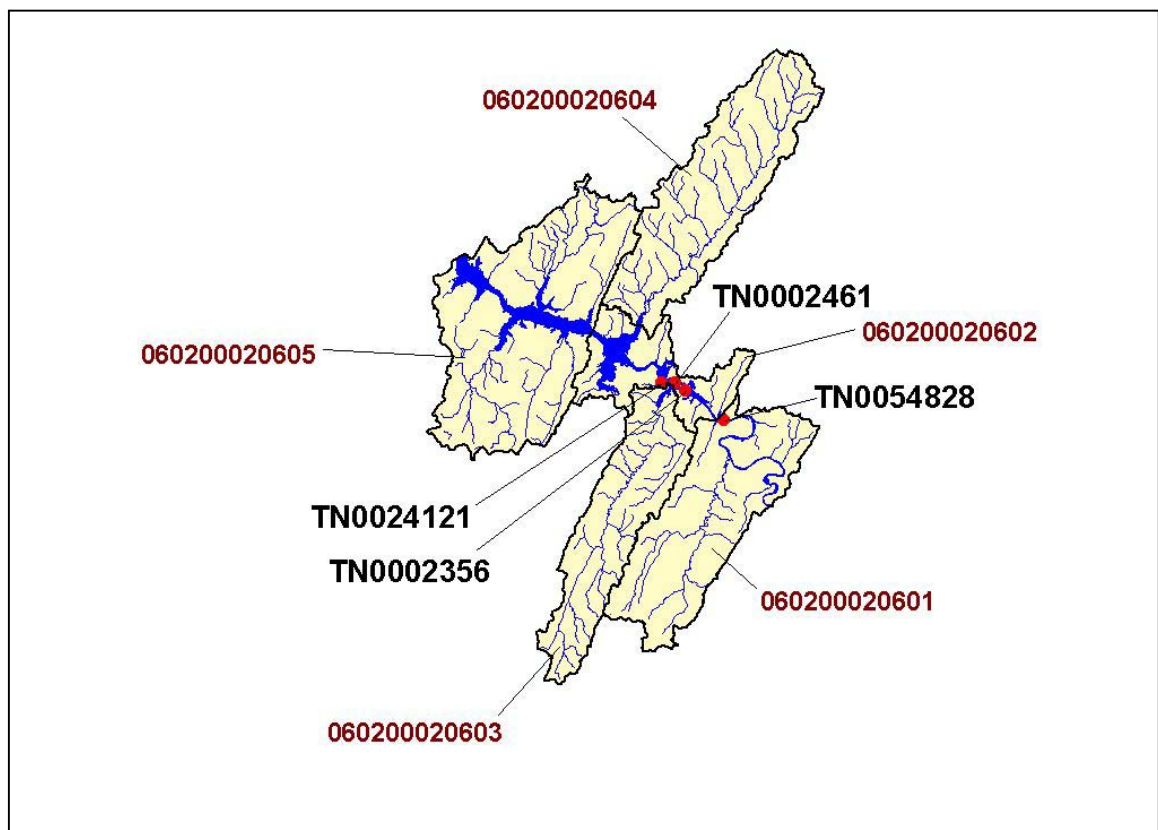
**Figure 4-44. Location of ARAP Sites (Individual Permits) in Subwatershed 060200020606.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604 and 060200020605 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.



**4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List**

There are four NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0602000206:

- TN0002356 (Bowater Newsprint) discharges to the Hiwassee River @ RM 22.7, RM 18.1, RM 16.5, and RM 15.0
- TN0002461 (Olin Corporation) discharges to the Hiwassee River @ RM 16.8, RM 16.6, and RM 15.8
- TN0024121 (Cleveland Utilities STP) discharges to the Hiwassee River @ RM 15.4
- TN0054828 (Calhoun School) discharges to the Hiwassee River @ RM 19.1



**Figure 4-45. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0602000206.** Subwatershed 060200020601, 060200020602, 060200020603, 060200020604, and 060200020605 boundaries are shown for reference. The names of facilities are provided in Hiwassee-Appendix IV.

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0002356	418.17	556.48	743.26	455.01	49.43400
TN002461	418.17	556.48	743.26	455.01	3.92700
TN0024121	418.17	556.48	743.26	455.01	21.6000
TN0054828	418.17	556.48	743.26	455.01	0.01200

**Table 4-26. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000206.** Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	FECAL	Zn	PHENOL
TN0002356	X	X	X

**Table 4-27. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000206.**

PERMIT #	WET	FECAL	Hg	NH <sub>3</sub>	TRC	TDS	TSS	DO	CBOD <sub>5</sub>	BOD	SETTLEABLE SOLIDS	pH	AOX
TN0002356	X		X	X		X	X			X		X	X
TN0002461		X	X		X	X	X					X	
TN0024121	X			X	X		X	X	X		X	X	
TN0054828		X		X	X		X	X	X		X	X	

**Table 4-28. Inorganic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000206.** WET, Whole Effluent Toxicity; TRC, Total Residual Chlorine; TDS, Total Dissolved Solids; TSS, Total Suspended Solids; CBOD<sub>5</sub>, Carbonaceous Biochemical Oxygen Demand (5-Day); AOX, Adsorbable Organic Halides.

PERMIT #	OIL and GREASE	DIOXIN
TN0002356	X	X

**Table 4-29. Organic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0602000206.**



**4.2.D.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
6,733	1,954	16,876	21	6,988,516	192	50

Table 4-30. Summary of Livestock Count Estimates in Subwatershed 0602000206. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

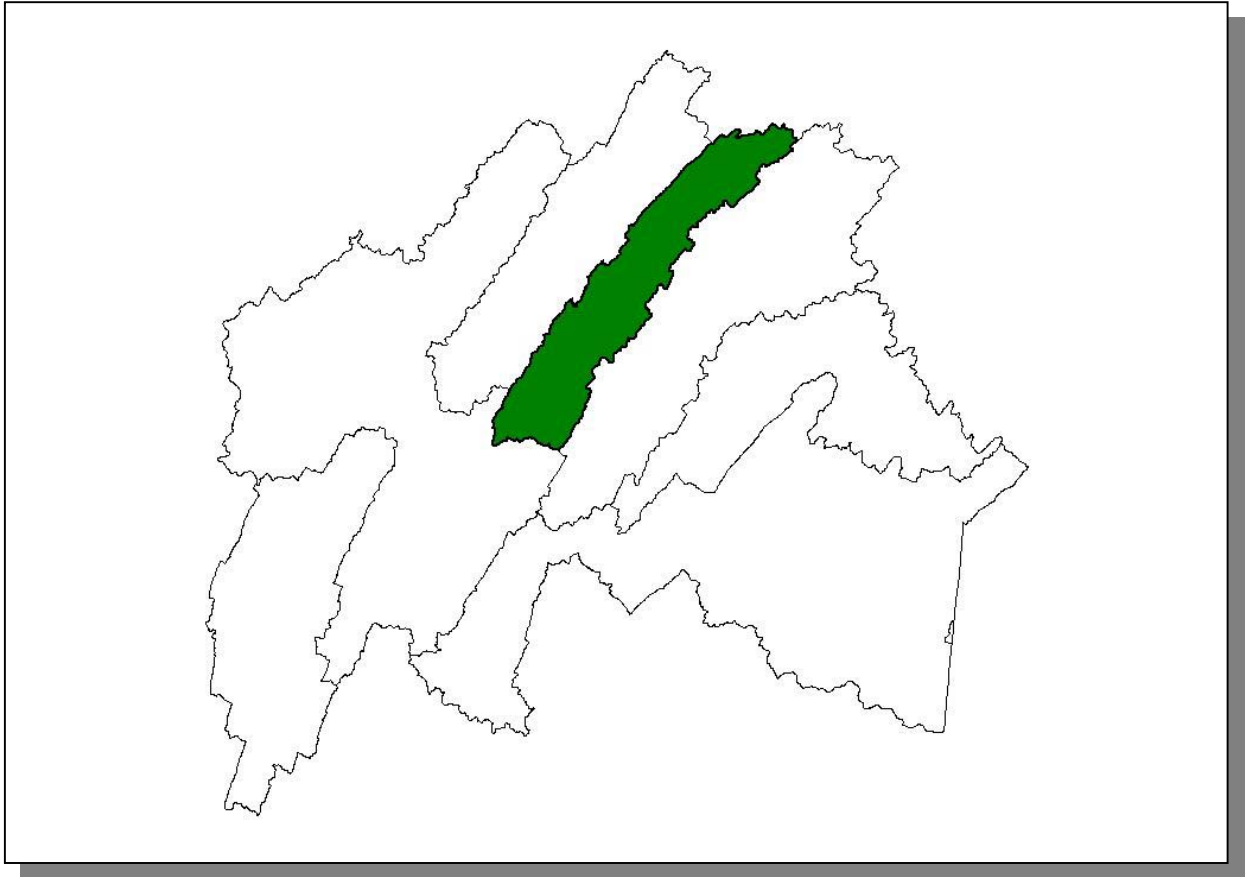
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1
Hamilton	210.7	210.7	2.2	6.0
Meigs	83.0	83.0	0.2	0.0
Polk	224.7	214.1	6.2	21.1
<b>Total</b>	<b>610.9</b>	<b>600.3</b>	<b>16.8</b>	<b>45.2</b>

**Table 4-31. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000206.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.94
Non Agricultural Land Use	0.00
Corn (Row Crops)	4.93
Soybeans (Row Crops)	2.33
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	3.14
Oats (Close Grown Cropland)	3.13
All Other Close Grown Cropland	1.99
Grass (Hayland)	0.49
Legume (Hayland)	0.13
Other Cropland not Planted	2.93
Grass (Pastureland)	0.35
Grass, Forbs, Legumes (Mixed Pasture)	0.65
Other Land in Farms	0.00
Conservation Reserve Program Land	0.27
Legume (Pastureland)	0.07
Fruit (Horticulture)	0.19

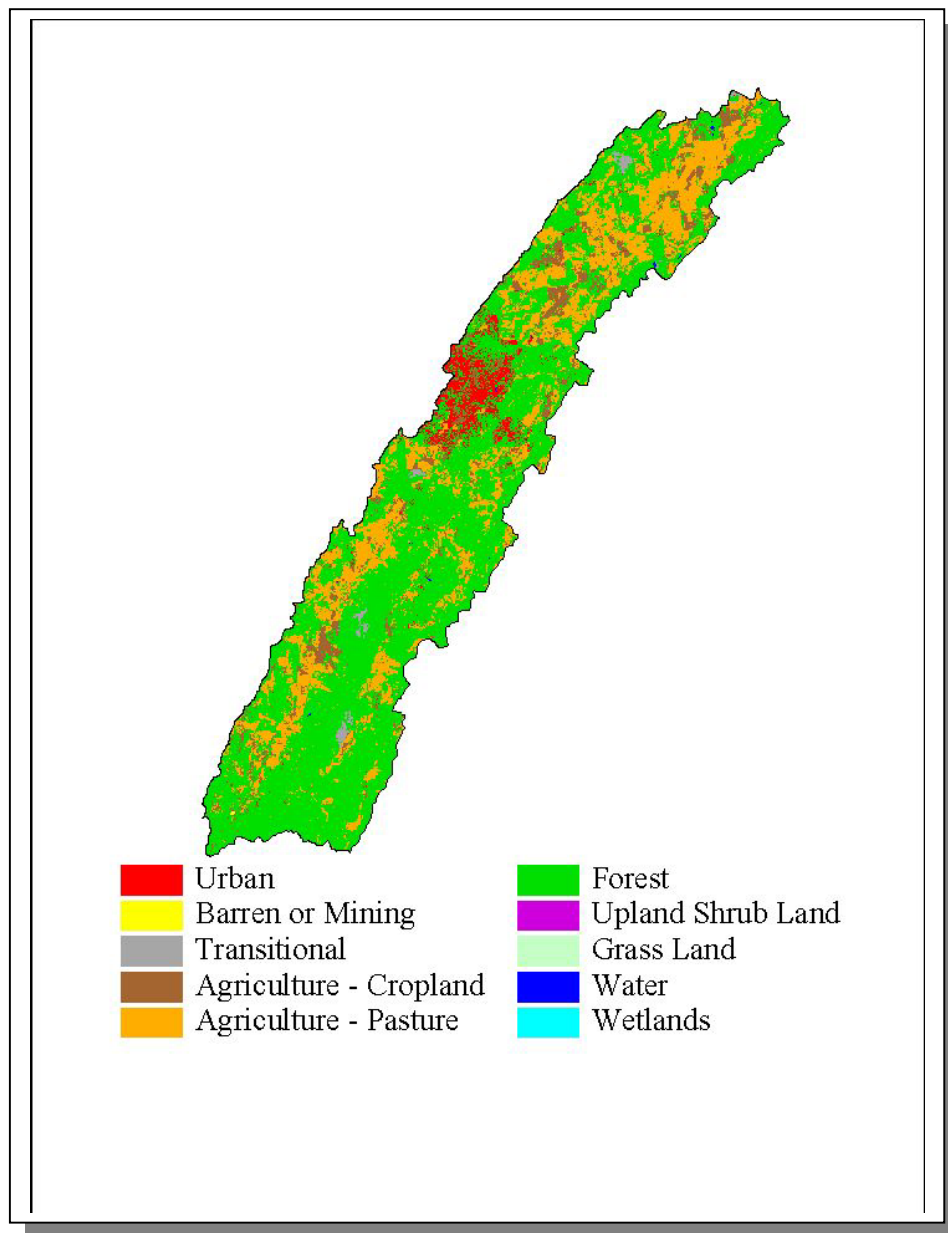
**Table 4-32. Annual Soil Loss in Subwatershed 0602000206.**

**4.2.E. 0602000207.**

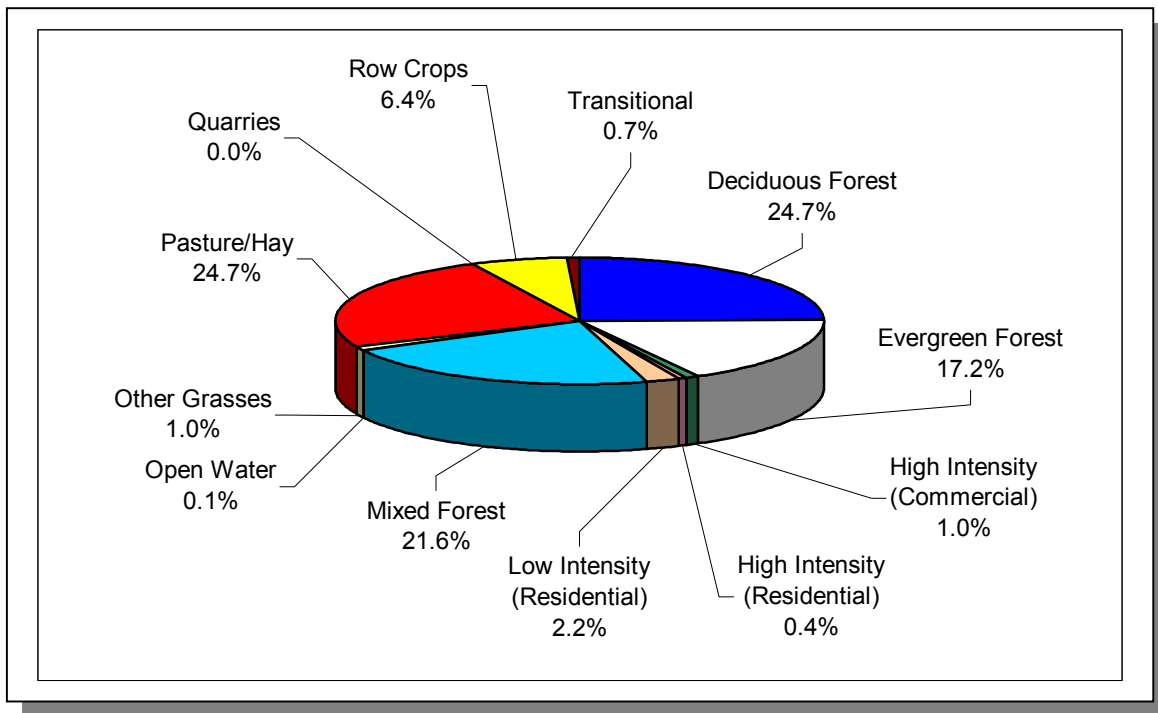


**Figure 4-46. Location of Subwatershed 0602000207.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

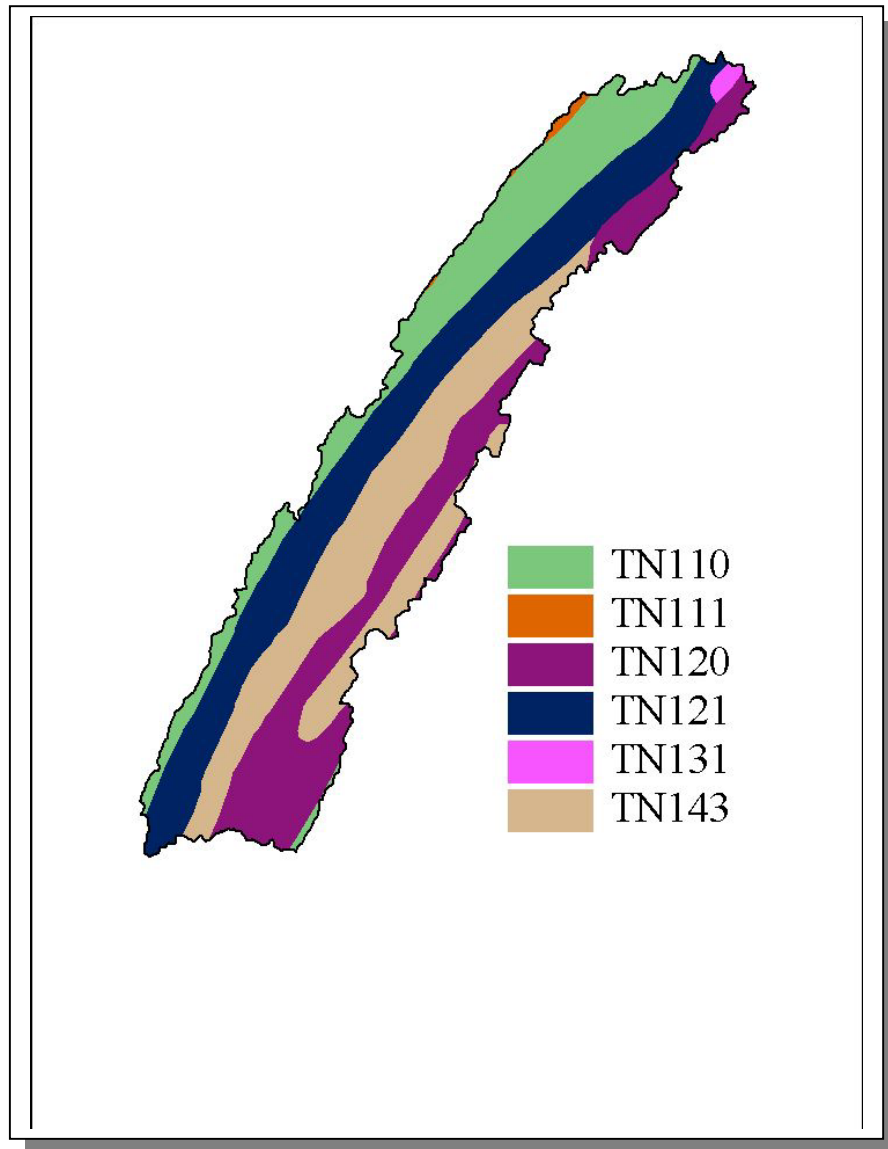
4.2.E.i. General Description.



*Figure 4-47. Illustration of Land Use Distribution in Subwatershed 0602000207.*



**Figure 4-48. Land Use Distribution in Subwatershed 0602000207.** More information is provided in Hiwassee-Appendix IV.



**Figure 4-49. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000207.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN110	0.00	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN120	0.00	B	1.68	5.11	Loam	0.27
TN121	0.00	B	1.30	5.21	Loam	0.33
TN131	0.00	C	1.17	4.95	Silty Loam	0.33
TN143	0.00	C	1.22	6.44	Loam	0.32

**Table 4-33. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000207.** More information is provided in Hiwassee-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Bradley	73,712	80,800	0.01	4	5	25.0
McMinn	42,383	46,000	15.92	6,745	7,321	8.5
Monroe	30,541	33,953	0.33	100	111	11.0
<b>Total</b>	<b>146,636</b>	<b>160,753</b>		<b>6,849</b>	<b>7,437</b>	<b>8.6</b>

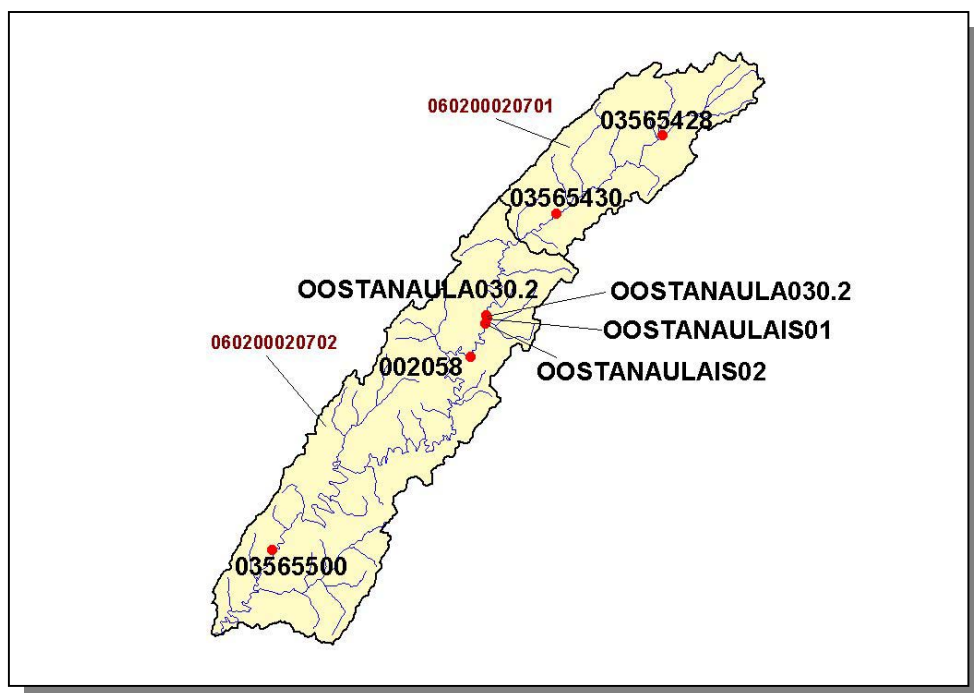
*Table 4-34. Population Estimates in Subwatershed 0602000207.*

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Athens	McMinn	12,954	5,184	4,947	237	0
Niota	McMinn	769	364	289	75	0
<b>Totals</b>		<b>13,723</b>	<b>5,548</b>	<b>5,236</b>	<b>312</b>	<b>0</b>

*Table 4-35. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000207.*

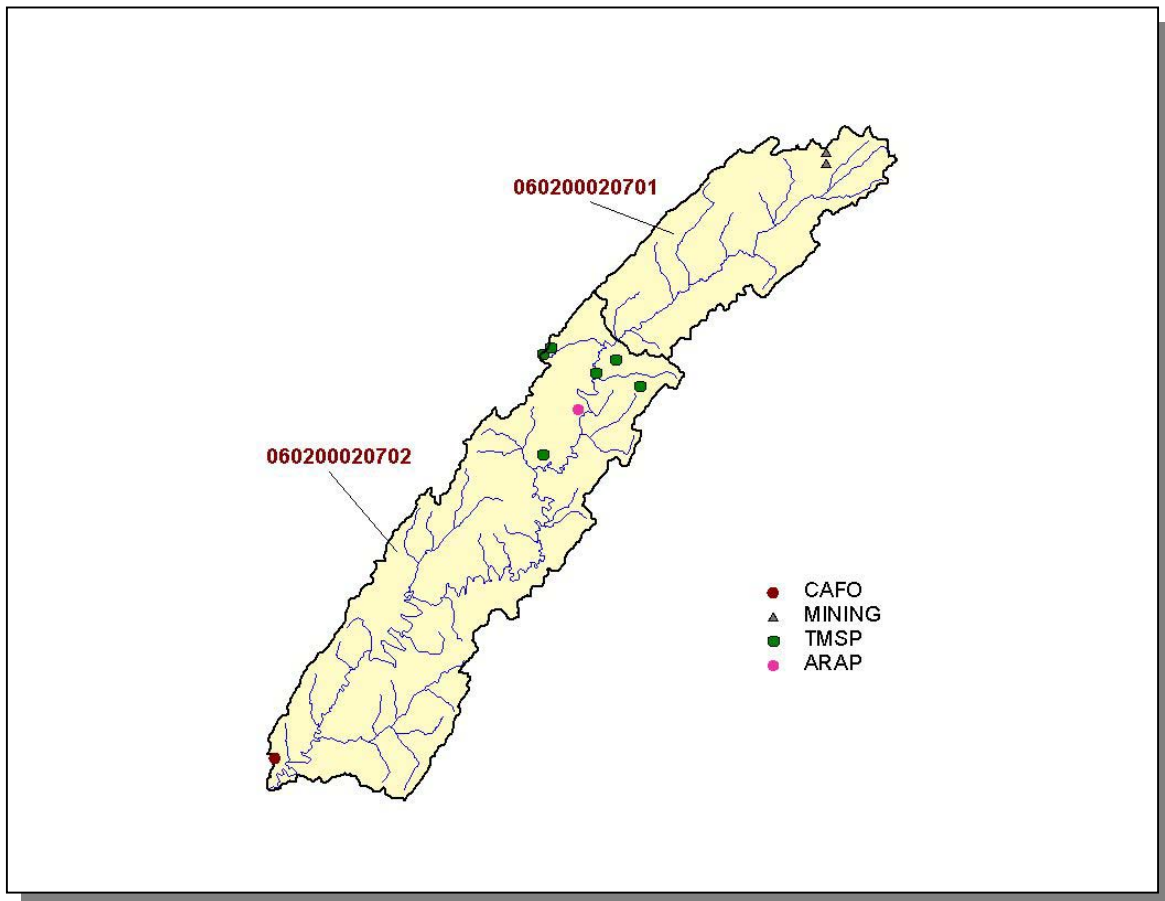


**Figure 4-50. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000207.** More information is provided in Hiwassee-Appendix IV.



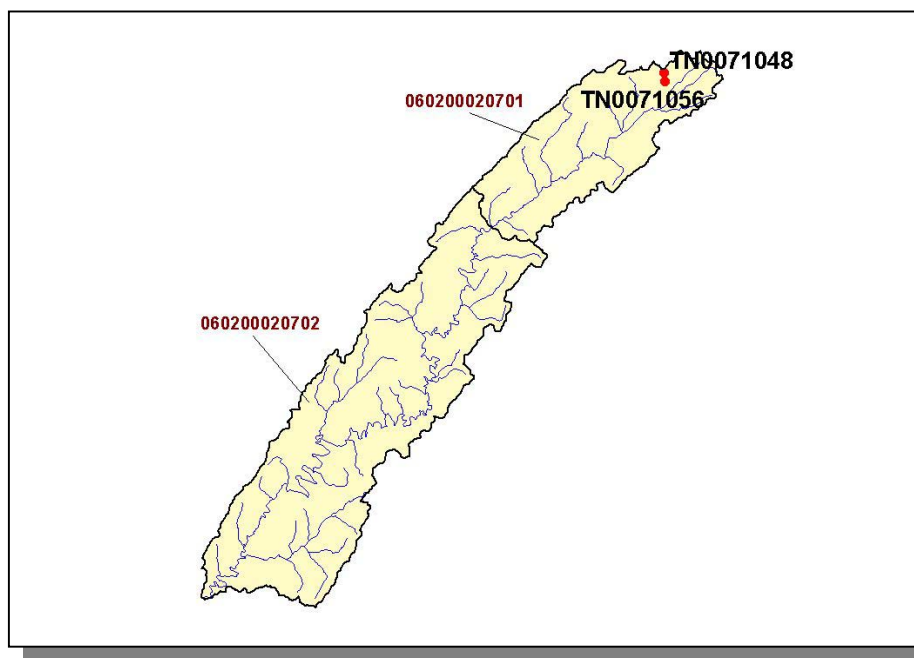
**Figure 4-51. Location of STORET Monitoring Sites in Subwatershed 0602000207.** Subwatershed 060200020701 and 060200020702 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

**4.2.E.ii.** Point Source Contributions.

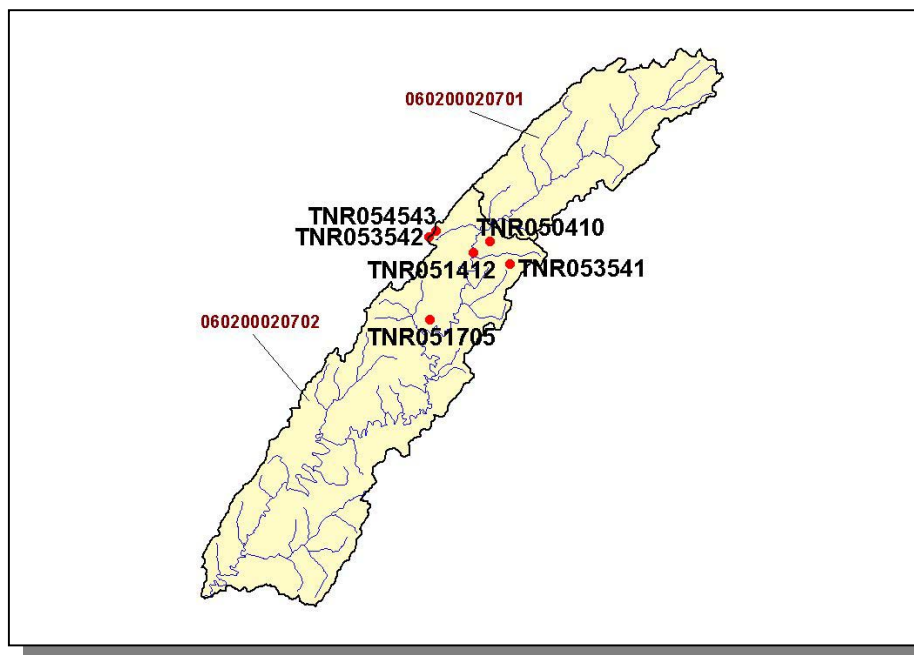


**Figure 4-52. Location of Active Point Source Facilities in Subwatershed 0602000207.** Subwatershed 060200020701 and 060200020702 boundaries are shown for reference. More information is provided in the following figures.





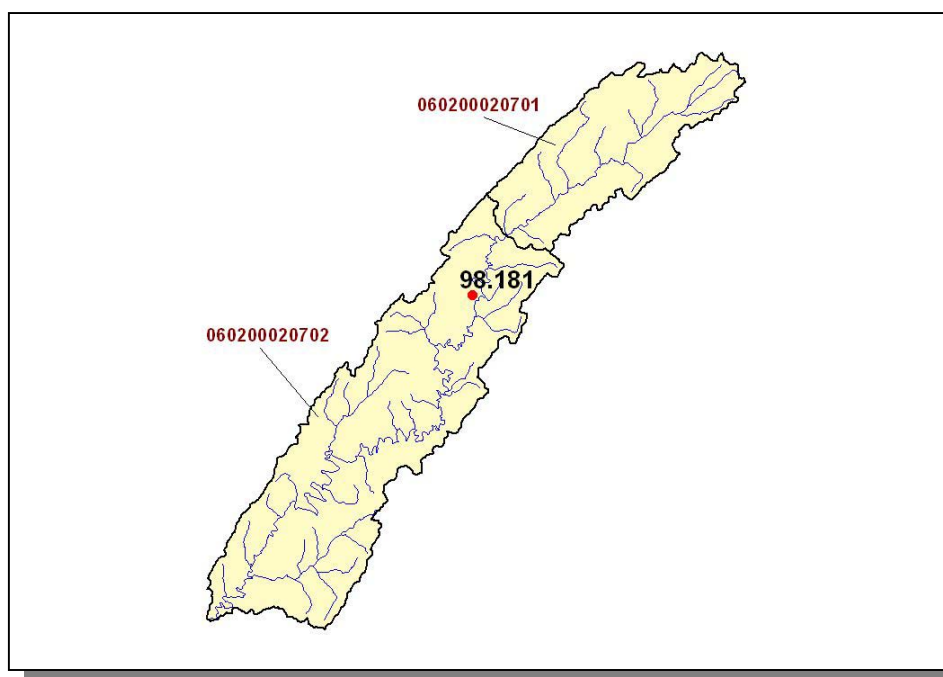
**Figure 4-53. Location of Active Mining Sites in Subwatershed 0602000207.** Subwatershed 060200020701 and 060200020702 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-54. Location of TMSP Facilities in Subwatershed 0602000207.** Subwatershed 060200020701 and 060200020702 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-55. Location of CAFO Facilities in Subwatershed 0602000207.** Subwatershed 060200020701, and 060200020702 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-56. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000207.** Subwatershed 060200020701 and 060200020702 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.E.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
2,488	1,084	6,533	7	786,620	64	5

**Table 4-36. Summary of Livestock Count Estimates in Subwatershed 0602000207.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

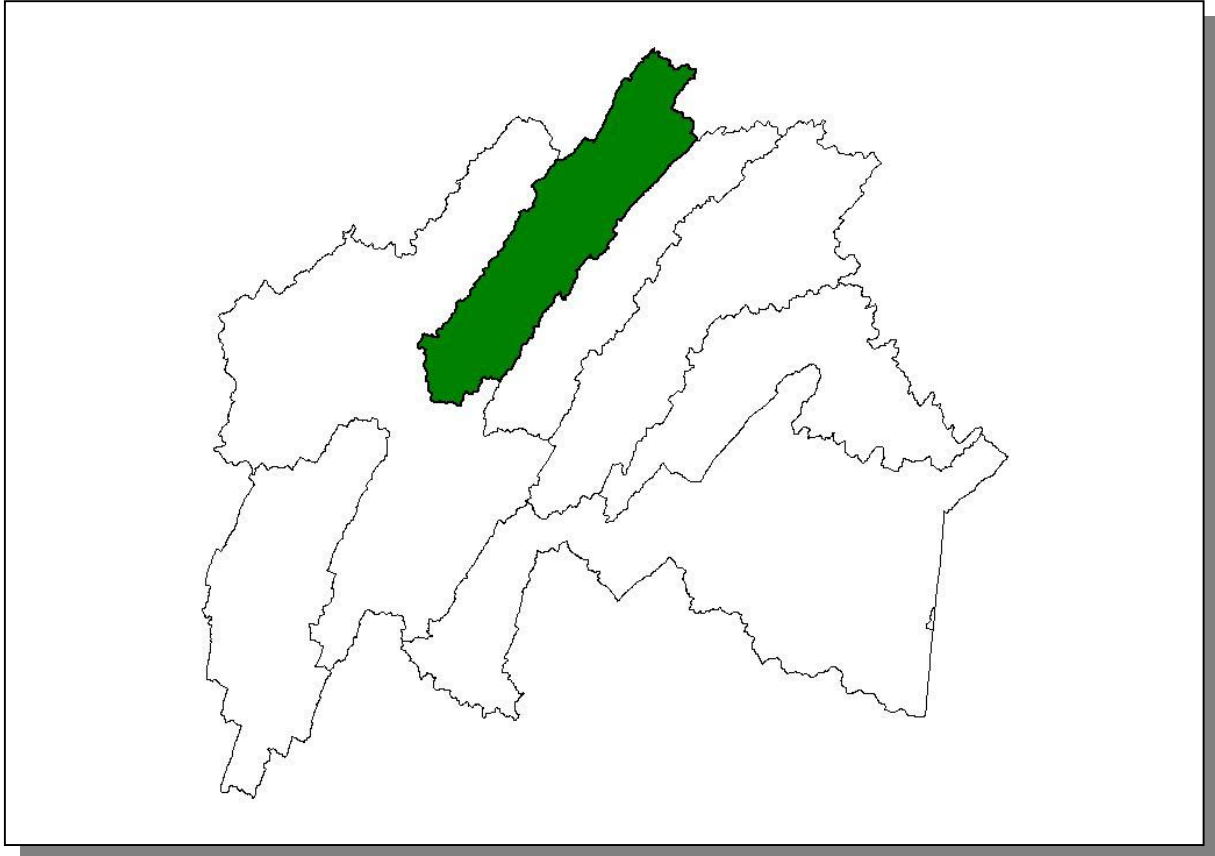
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1
Monroe	301.5	279.1	7.4	21.4
<b>Totals</b>	<b>394.0</b>	<b>371.6</b>	<b>15.6</b>	<b>39.5</b>

**Table 4-37. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0602000207.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Soybeans (Row Crops)	12.82
Grass (Pastureland)	0.39
Non Agricultural Land Use	0.00
Grass (Hayland)	0.36
Grass, Forbs, Legumes (Mixed Pasture)	0.66
Farmsteads and Ranch Headquarters	1.05
Legume Grass (Hayland)	0.60
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	17.07
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	6.20
Conservation Reserve Program Land	0.27

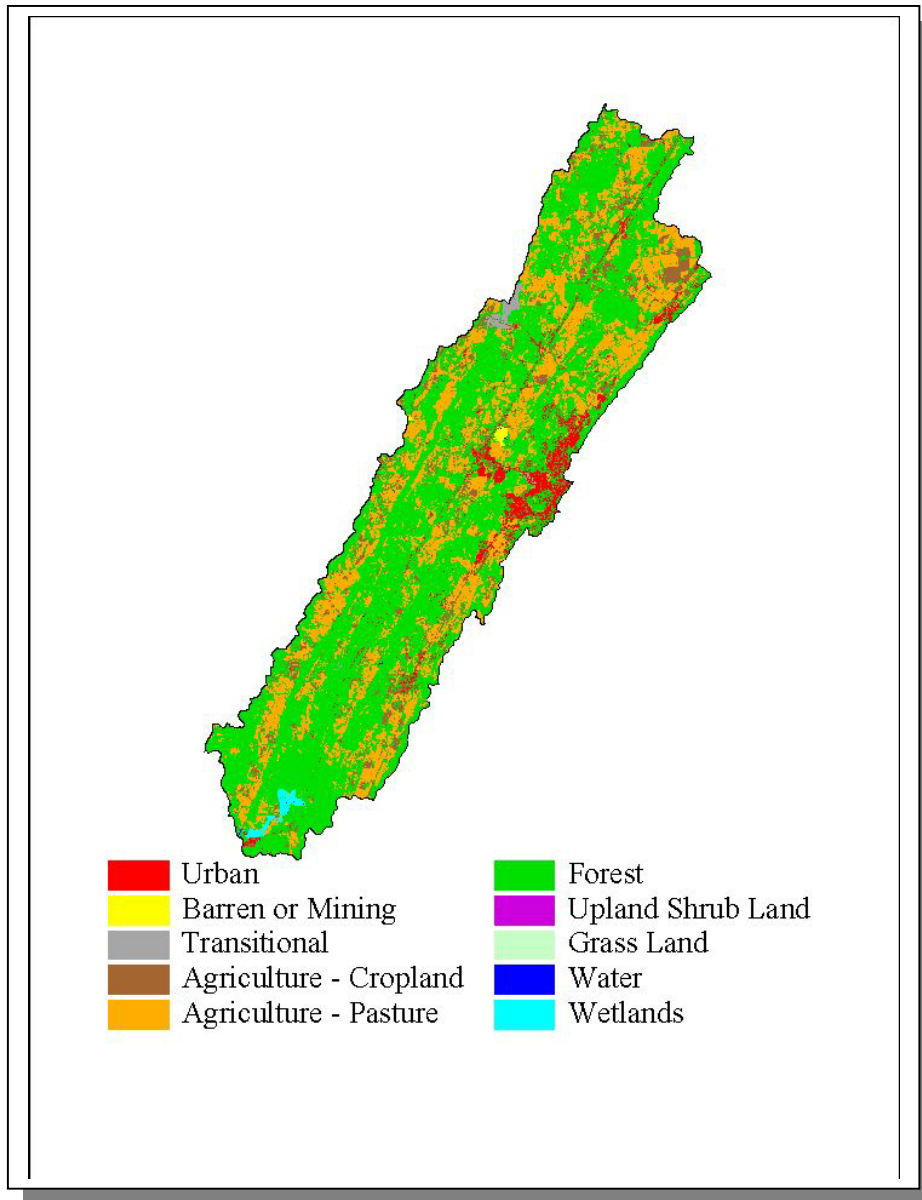
**Table 4-38. Annual Estimated Soil Loss in Subwatershed 0602000207.**

**4.2.F. 0602000208**

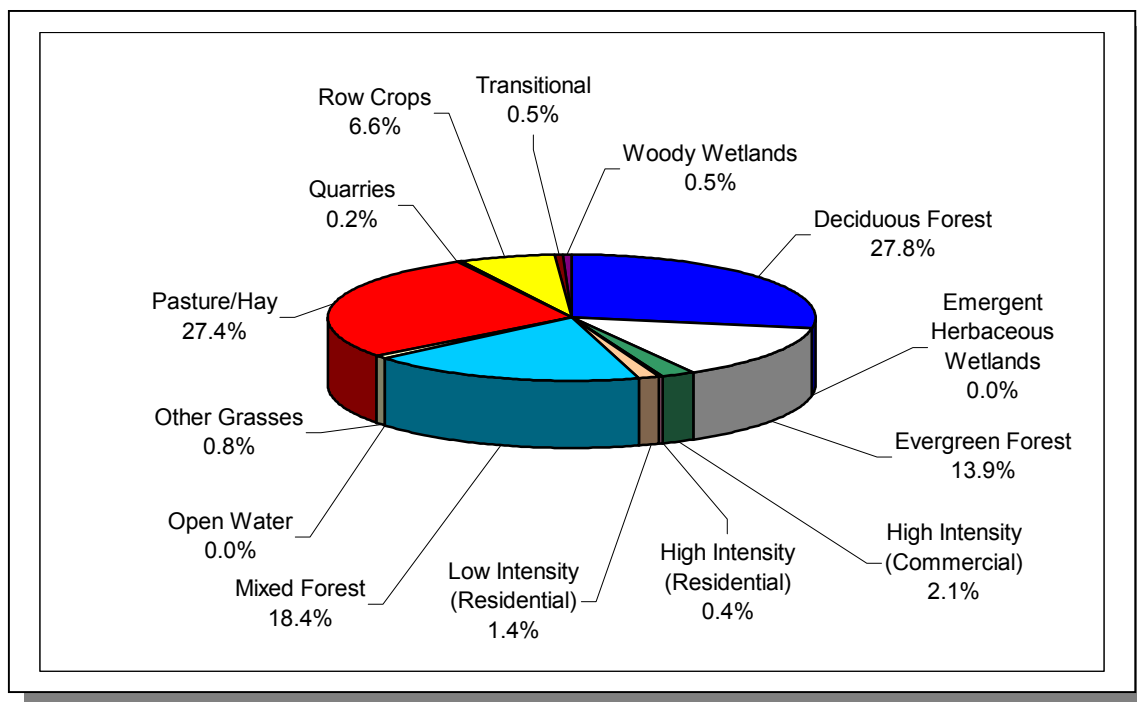


**Figure 4-57. Location of Subwatershed 0602000208.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

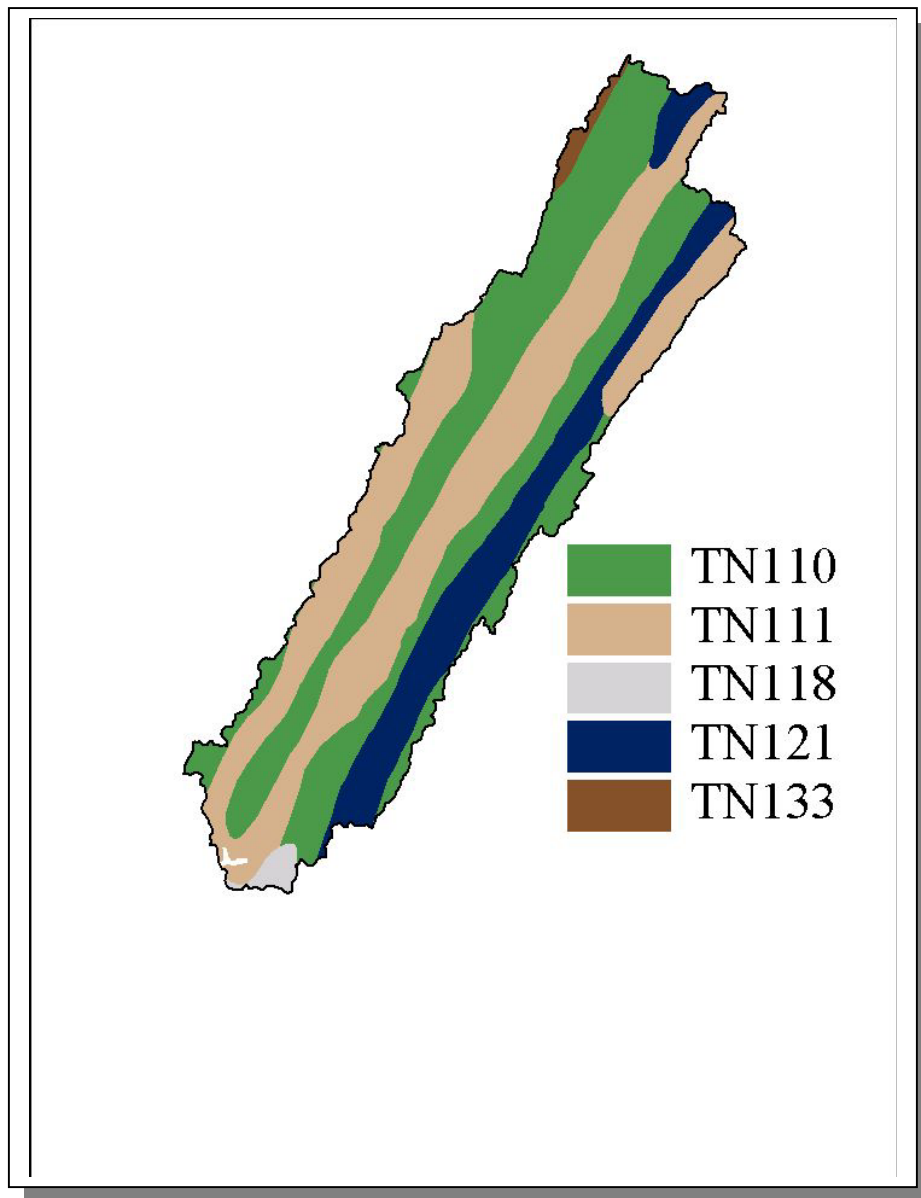
4.2.F.i. General Description.



*Figure 4-58. Illustration of Land Use Distribution in Subwatershed 0602000208.*



**Figure 4-59. Land Use Distribution in Subwatershed 0602000208.** More information is provided in Hiwassee-Appendix IV.



**Figure 4-60. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000208.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN110	0.00	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN118	0.00	C	6.52	5.12	Loam	0.29
TN121	0.00	B	1.30	5.21	Loam	0.33
TN133	0.00	C	1.35	6.04	Clayey Loam	0.27

**Table 4-39. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000208.** More information is provided in Hiwassee-Appendix IV.

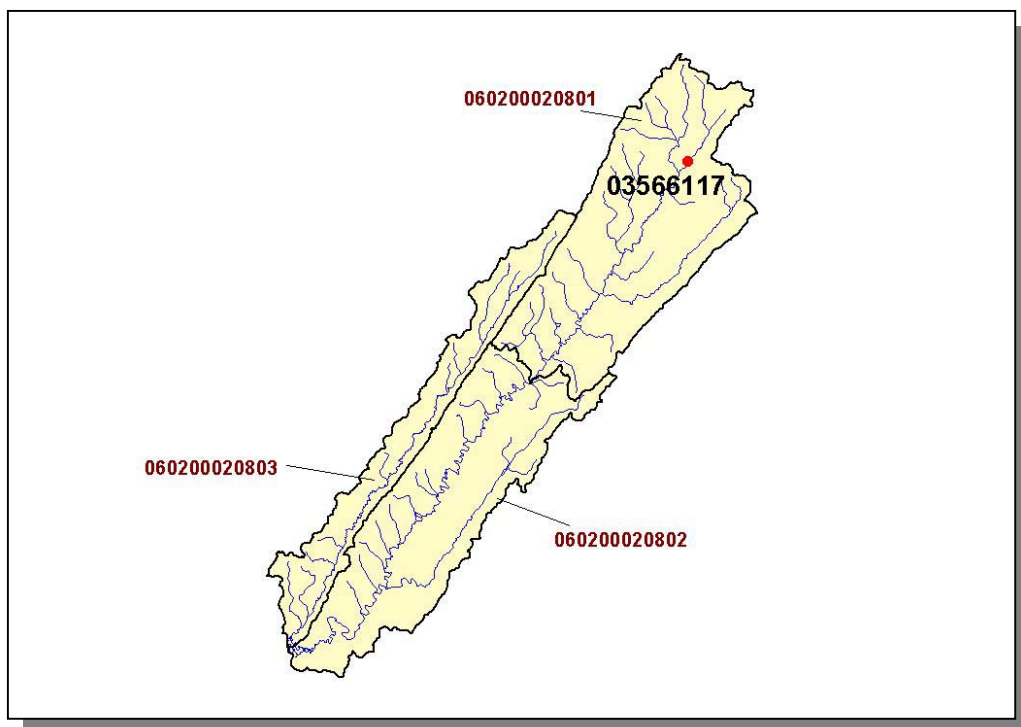
County	TOTAL COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Bradley	73,712	80,800	0.00	2	2	0.0
McMinn	42,383	46,000	21.73	9,210	9,996	8.5
<b>Totals</b>	<b>116,095</b>	<b>126,800</b>		<b>9,212</b>	<b>9,998</b>	<b>8.5</b>

*Table 4-40. Population Estimates in Subwatershed 0602000208.*

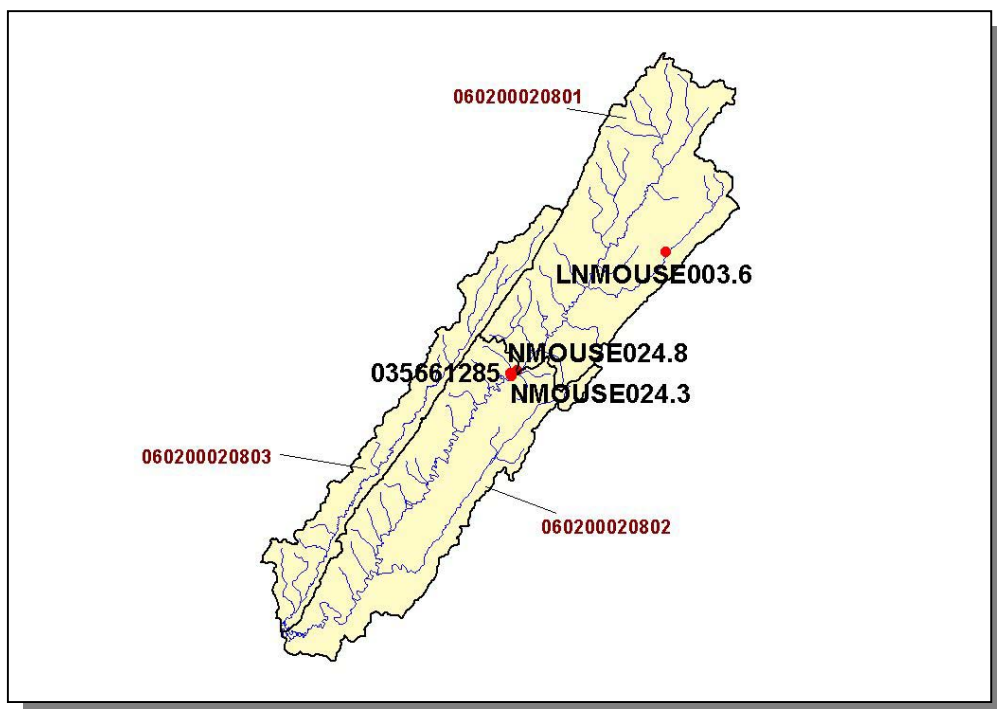
Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Athens	McMinn	12,054	5,184	4,947	237	0
Niota	McMinn	769	364	289	75	0
<b>Totals</b>		<b>12,823</b>	<b>5,548</b>	<b>5,236</b>	<b>312</b>	<b>0</b>

*Table 4-41. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000208.*



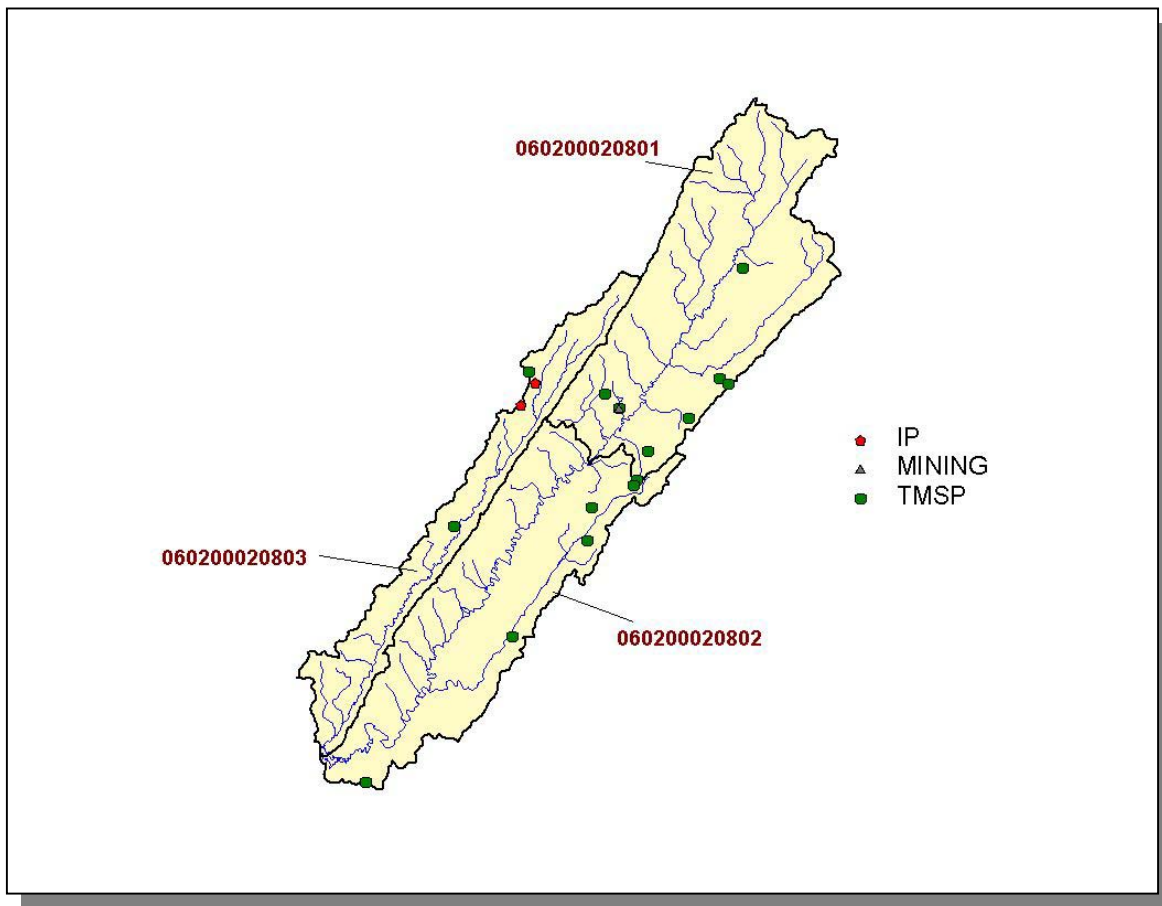


**Figure 4-61. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

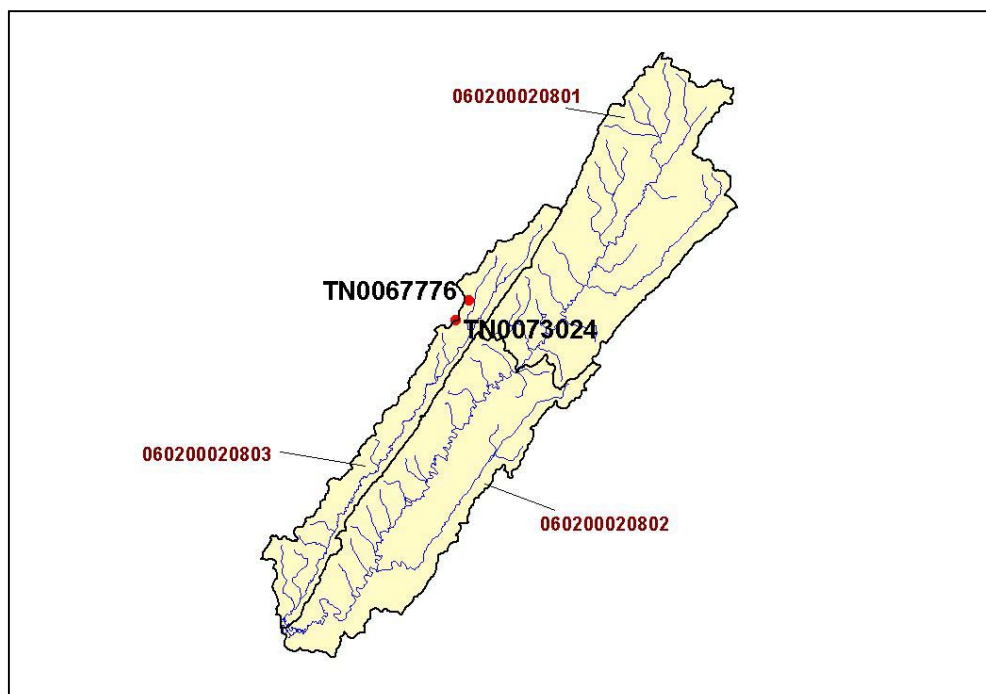


**Figure 4-62. Location of STORET Monitoring Sites in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

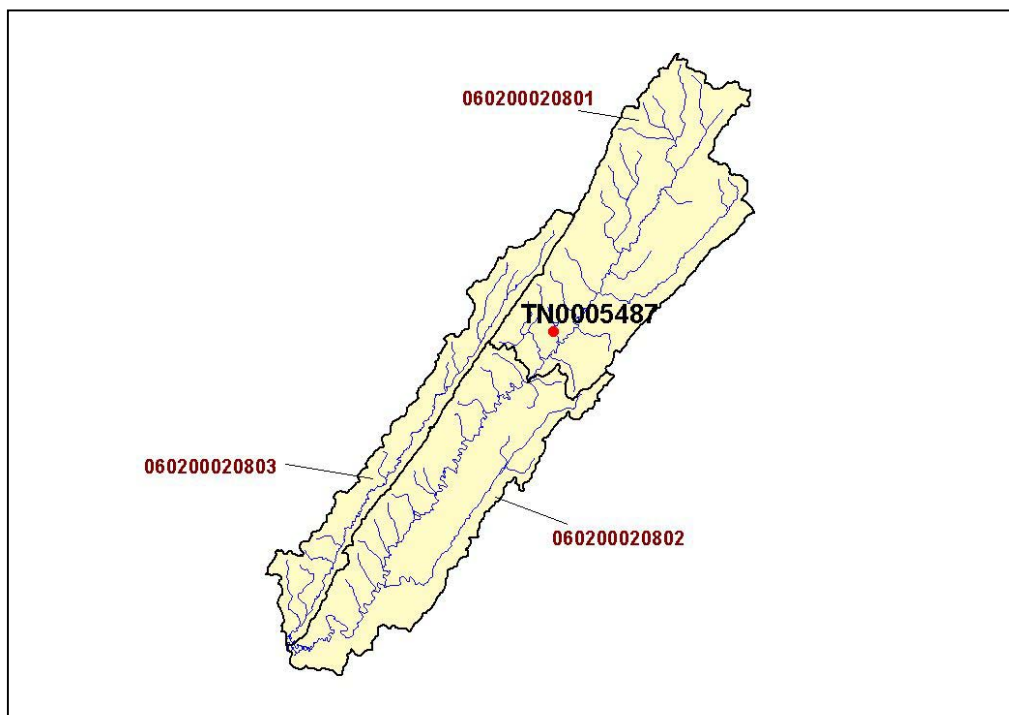
**4.2.F.ii.** Point Source Contributions.



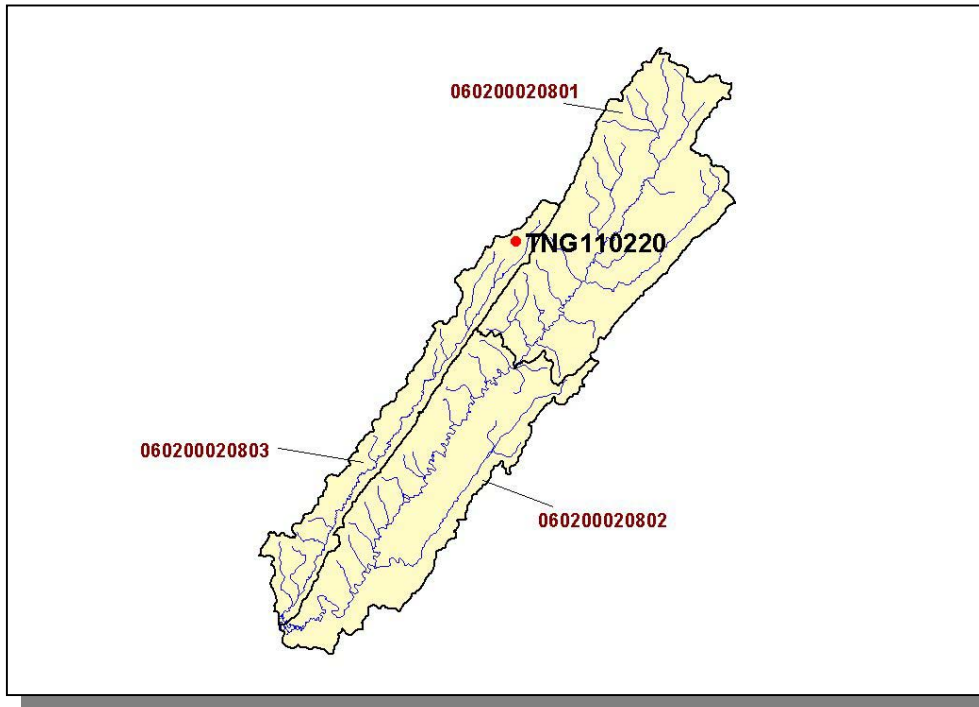
**Figure 4-63. Location of Active Point Source Facilities in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information is provided in the following figures.



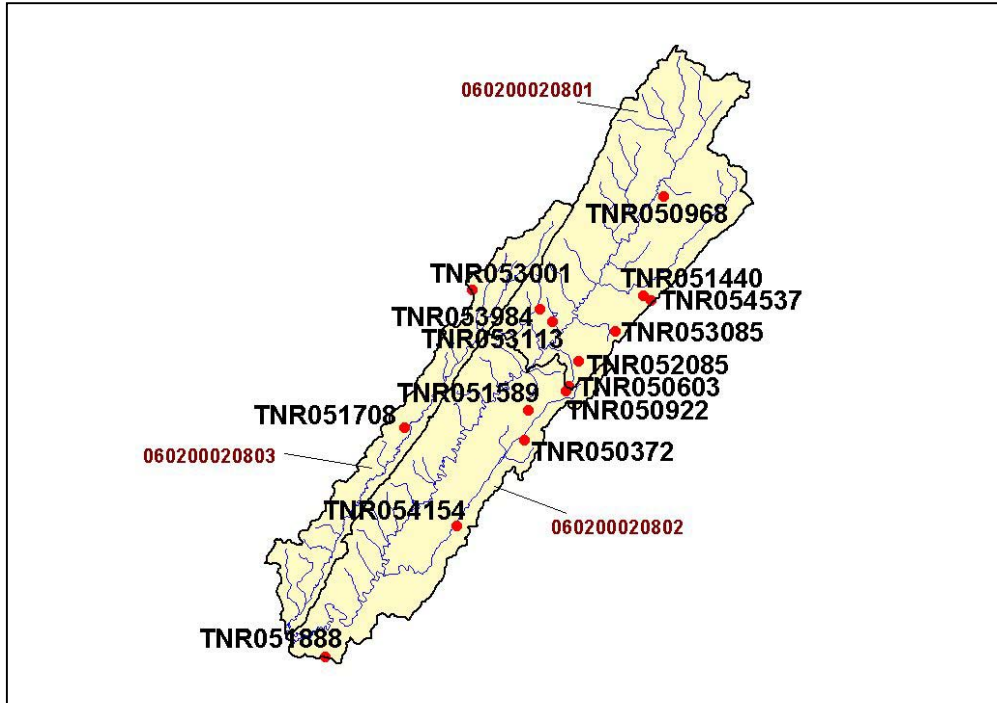
**Figure 4-64. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-65. Location of Active Mining Sites in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-66. Location of Ready Mix Concrete Facilities in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-67. Location of TMSP Facilities in Subwatershed 0602000208.** Subwatershed 060200020801, 060200020802, and 060200020803 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.F.iii. Nonpoint Source Contributions.**

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
3,625	1,581	9,523	11	1,189,471	95	6

**Table 4-42. Summary of Livestock Count Estimates in Subwatershed 0602000208.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

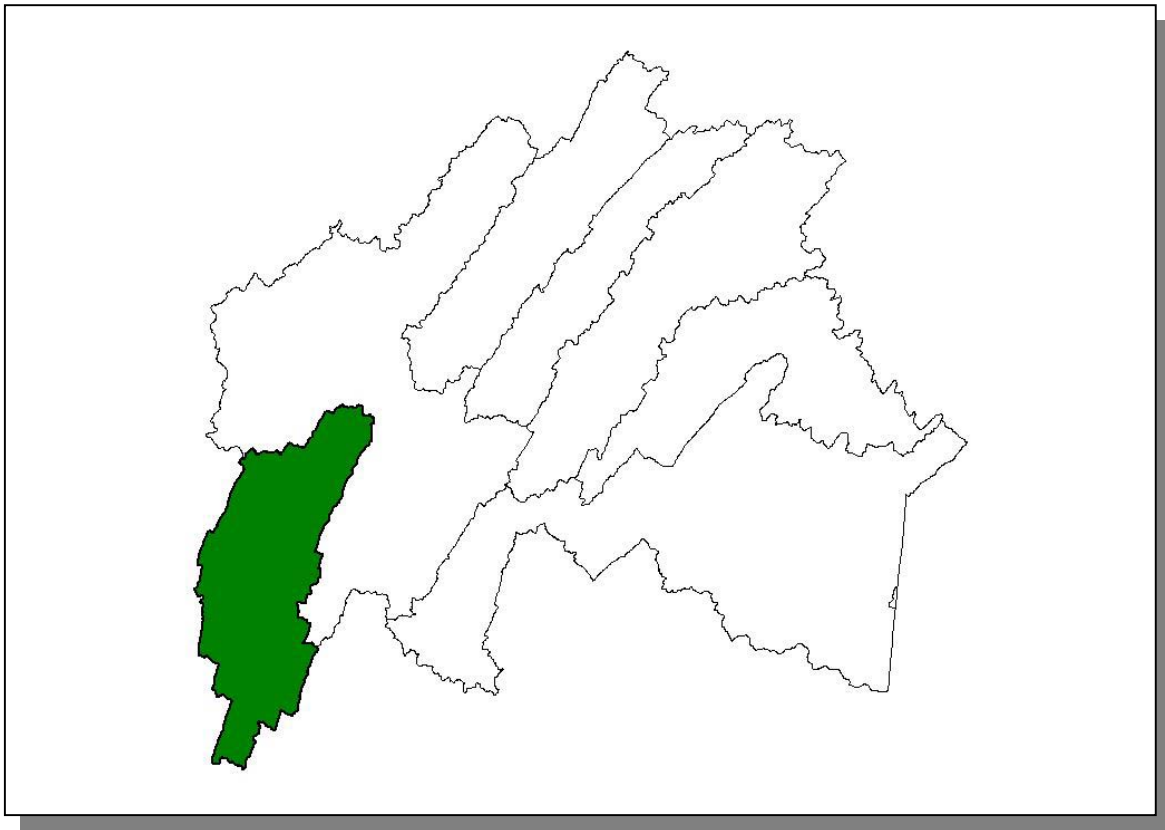
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1

**Table 4-43. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000208.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Non Agricultural Land Use	0.00
Grass (Hayland)	0.36
Legume (Hayland)	0.11
Grass (Pastureland)	0.38
Grass, Forbs, Legumes (Mixed (Pasture)	0.67
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.07
Corn (Row Crops)	5.26
Tobacco (Row Crops)	5.65
Conservation Reserve Program Land	0.27

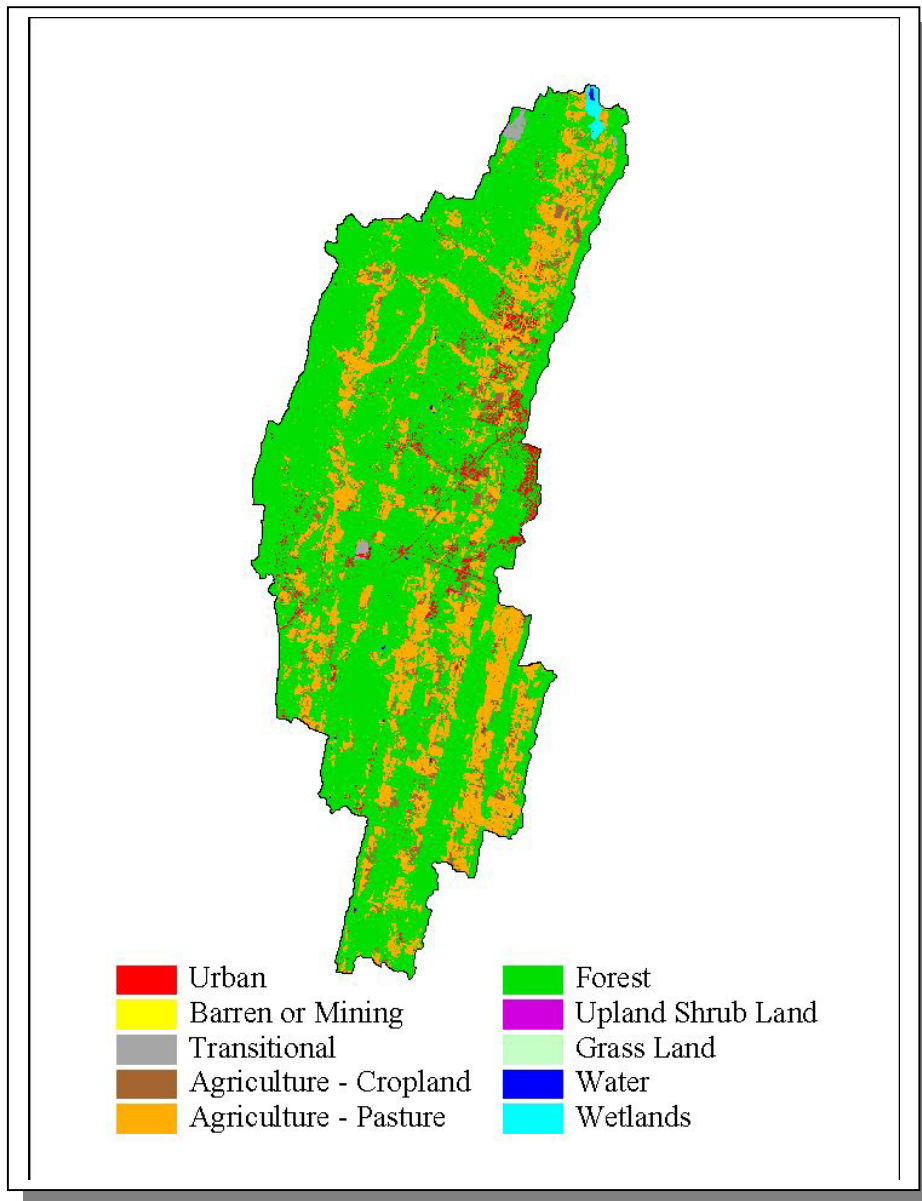
**Table 4-44. Annual Estimated Total Soil Loss in Subwatershed 0602000208.**

**4.2.G. 0602000209.**

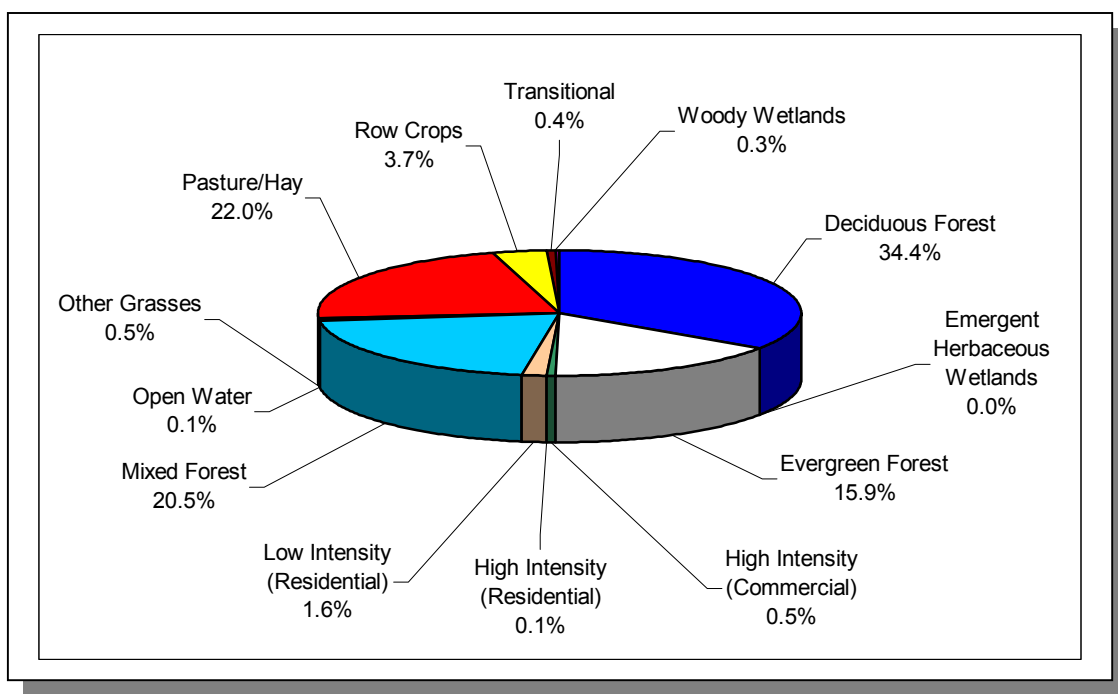


**Figure 4-68. Location of Subwatershed 0602000209.** All Hiwassee HUC-10 subwatershed boundaries are shown for reference.

4.2.G.i. General Description.

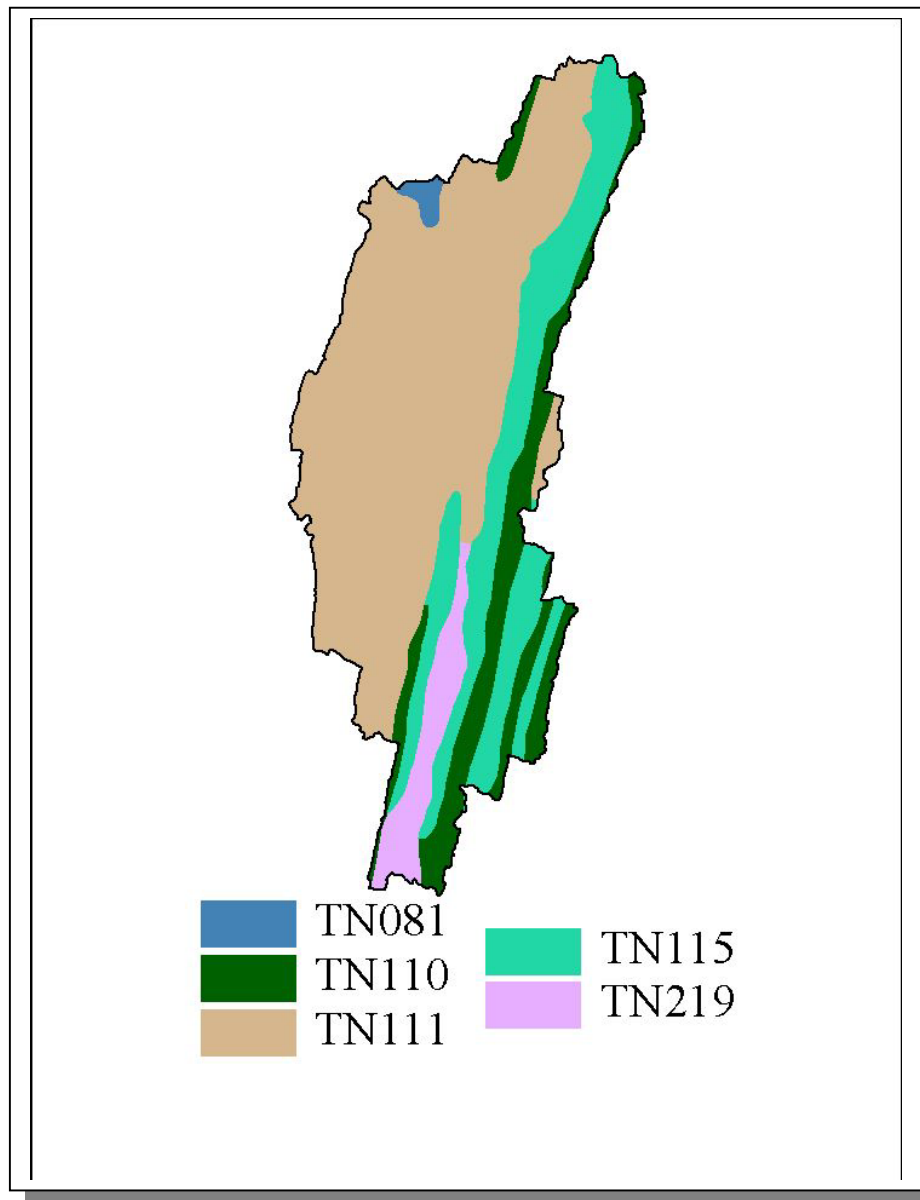


*Figure 4-69. Illustration of Land Use Distribution in Subwatershed 0602000209.*



**Figure 4-70. Land Use Distribution in Subwatershed 0602000209.** More information is provided in Hiwassee-Appendix IV.





**Figure 4-71. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000209.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN081	2.0	C	1.41	5.48	Silty Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN111	0.00	C	1.41	5.10	Loam	0.34
TN115	0.00	C	1.41	5.15	Silty Loam	0.36
TN219	0.00	C	1.35	4.95	Loam	0.33

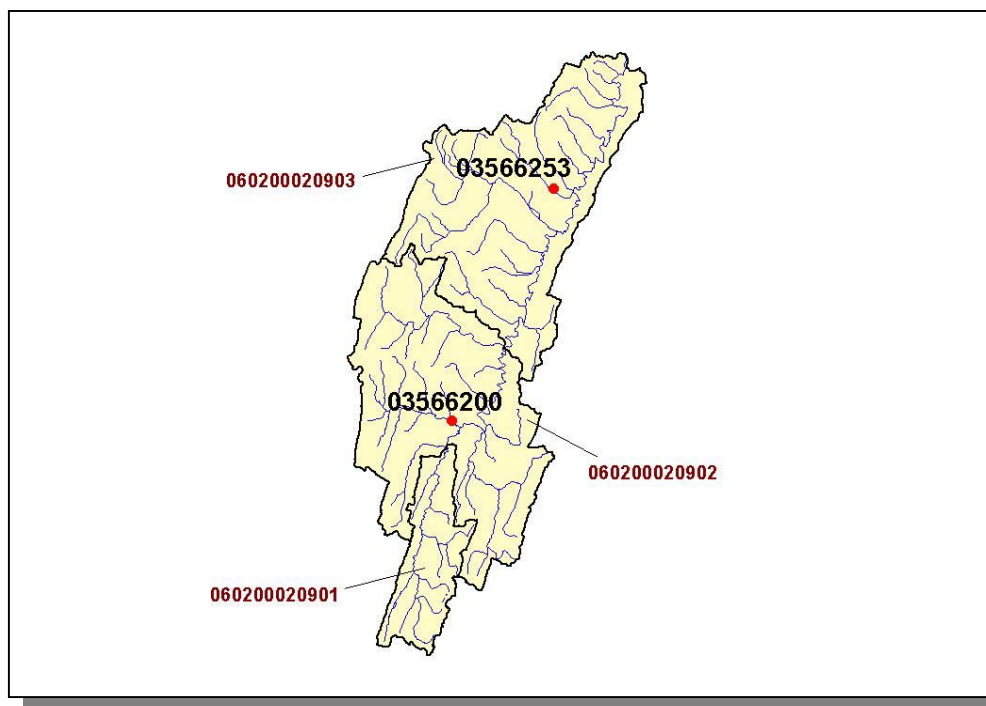
**Table 4-45. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000209.** More information is provided in Hiwassee-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Bradley	73,712	80,800	30.23	22,284	24,426	9.6
Hamilton	285,536	294,865	0.88	2,500	2,581	3.2
<b>Totals</b>	<b>359,248</b>	<b>375,665</b>		<b>24,784</b>	<b>27,007</b>	<b>9.0</b>

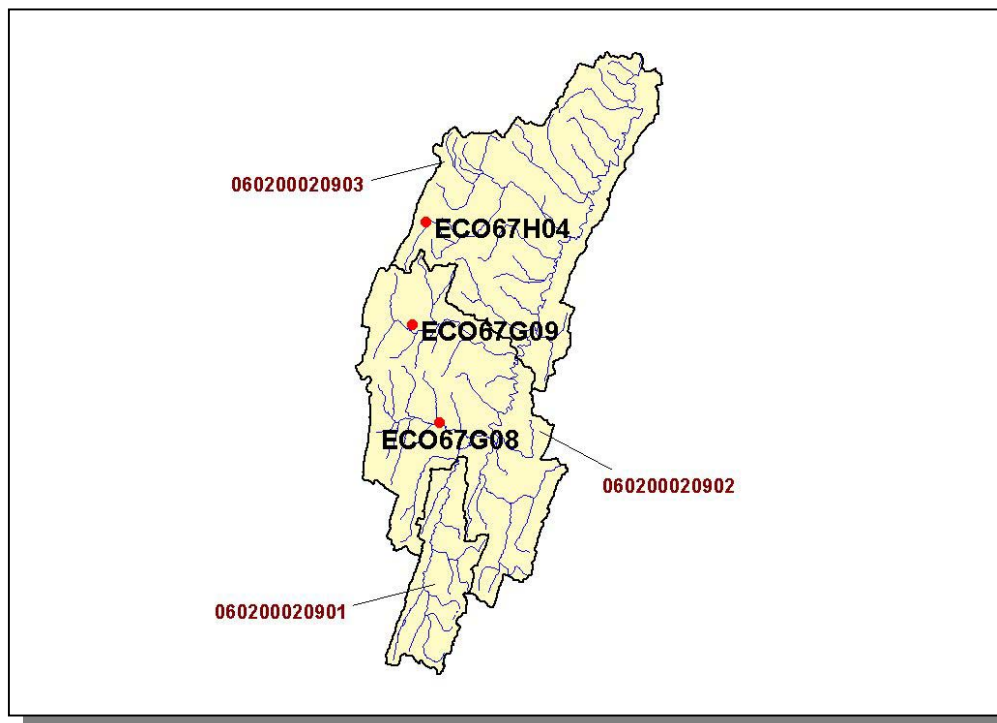
*Table 4-46. Population Estimates in Subwatershed 0602000209.*

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Cleveland	Bradley	30,333	13,045	12,033	1,007	5

*Table 4-47. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000209.*

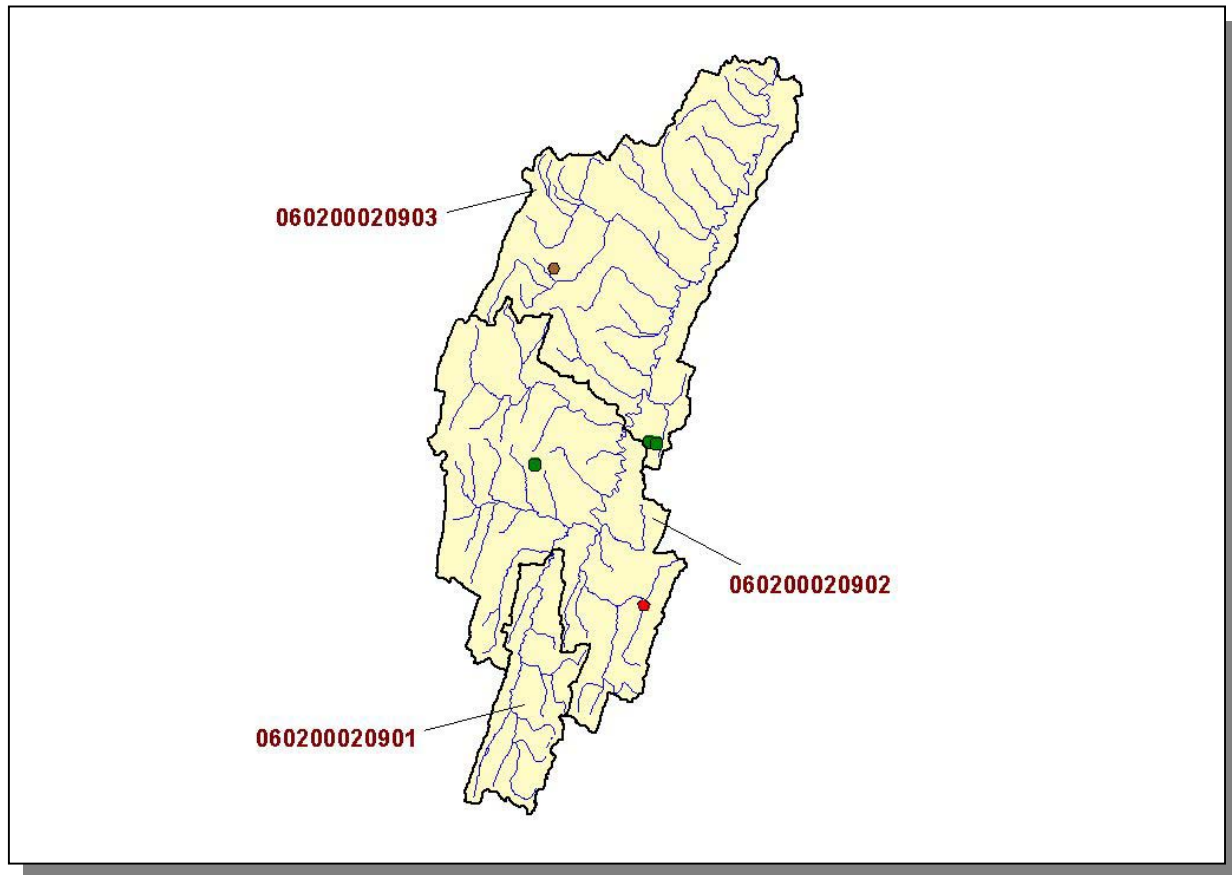


**Figure 4-72. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

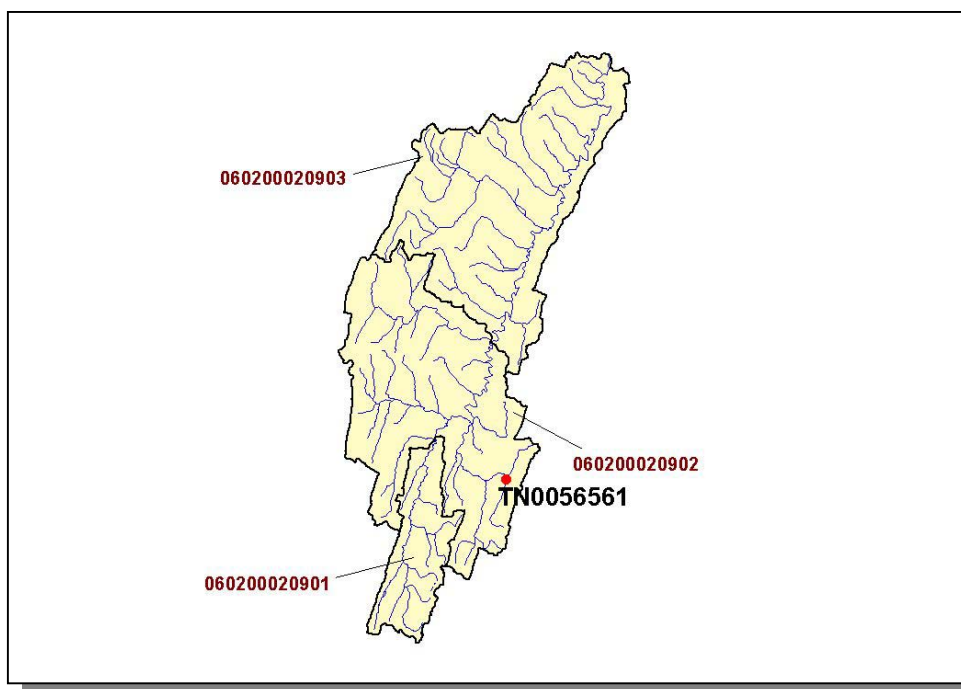


**Figure 4-73. Location of STORET Monitoring Sites in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. More information is provided in Hiwassee-Appendix IV.

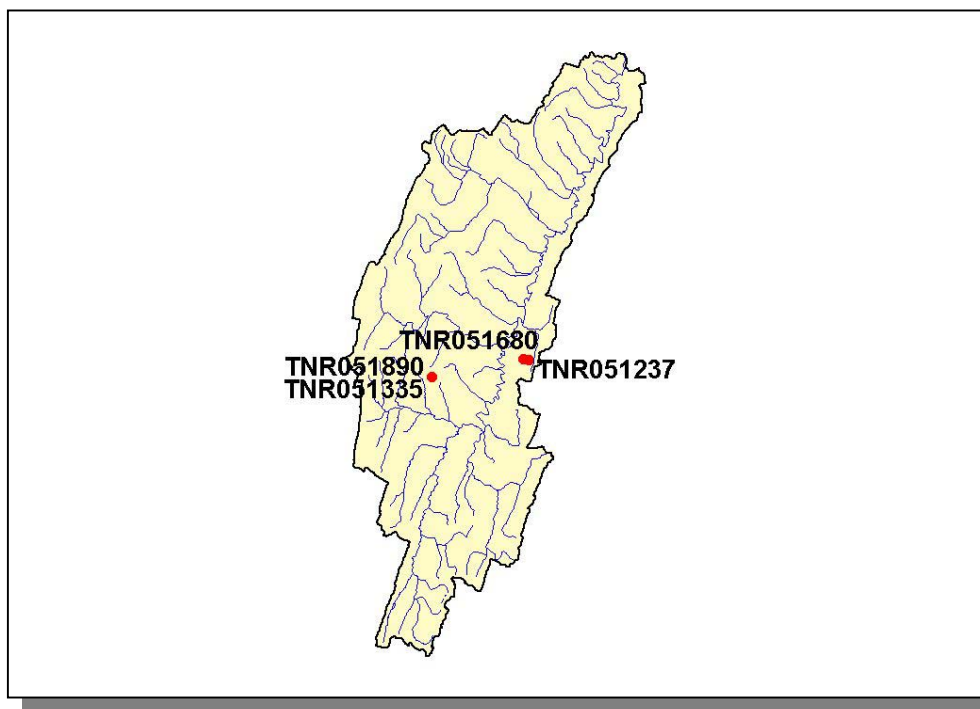
**4.2.G.ii.** Point Source Contributions.



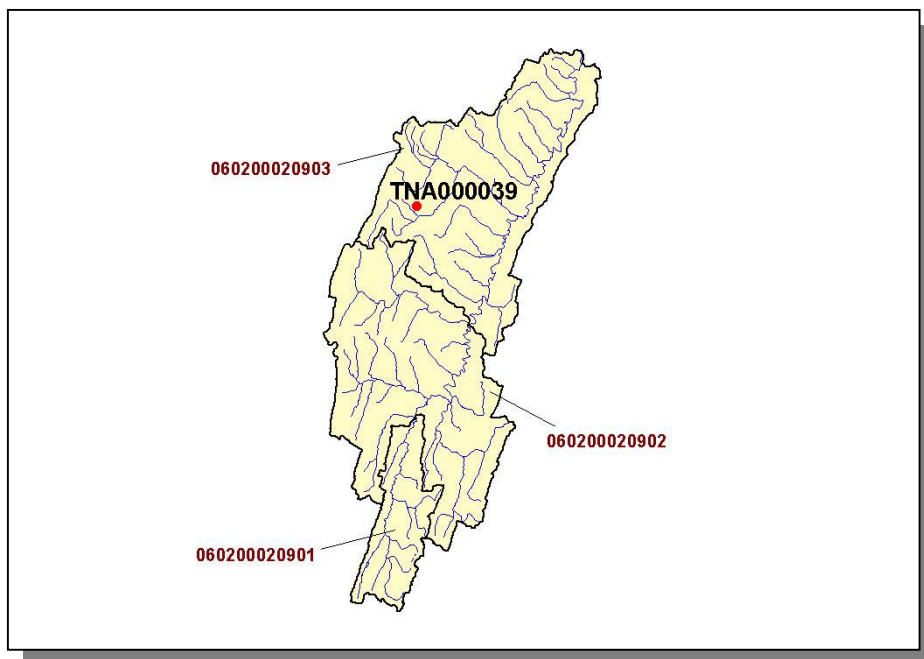
**Figure 4-74. Location of Active Point Source Facilities in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. More information is provided in the following figures.



**Figure 4-75. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-76. Location of TMSP Facilities in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.



**Figure 4-77. Location of CAFO Facilities in Subwatershed 0602000209.** Subwatershed 060200020901, 060200020902, and 060200020903 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Hiwassee-Appendix IV.

**4.2.G.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
3,046	8,470	1,059	10	5,801,466	82	36

**Table 4-48. Summary of Livestock Count Estimates in Subwatershed 0602000209.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bradley	92.5	92.5	8.2	18.1
Hamilton	210.7	210.7	2.2	6.0
<b>Totals</b>	<b>303.2</b>	<b>303.2</b>	<b>10.4</b>	<b>24.1</b>

**Table 4-49. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0602000209.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Grass (Hayland)	0.45
Legume (Hayland)	0.12
Grass (Pastureland)	0.41
Grass, Forbs, Legumes (Mixed Pasture)	0.90
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.21
Corn (Row Crops)	5.27
Conservation Reserve Program Land	0.27
Nonagricultural Land Use	0.00
Wheat (Close Grown Cropland)	3.14
Oats (Close Grown Cropland)	3.13
All Other Close Grown Cropland	1.99
Other Land in Farms	0.00
Legume (Pastureland)	0.07

**Table 4-50. Annual Estimated Total Soil Loss in Subwatershed 0602000209.**